ST. MARY'S HOSPITAL LIBRARY

THE

BRITISH JOURNAL

OF

CHILDREN'S DISEASES.

VOL. IX. NOVEMBER, 1912. No. 107.

Original Articles.

SOME CONSIDERATIONS ON INFANT FEEDING.

By F. G. CROOKSHANK, M.D.Lond., M.R.C.P.,

Assistant Physician to the Belgrave Hospital for Children, and Honorary Physician to the Western General Dispensary, Marylebone, N.W.

THERE are two ways in which the art of medicine may be rationally advanced. Mere practice leads only to empiricism; but if hypotheses be constructed on the basis of clinical experience, and such hypotheses be subjected to the test of particular investigation, whether at the bedside, or in the laboratory, the method of Bacon, or rather what is called the Baconian method, is being strictly followed. The other plan is to formulate theories, on the basis of laboratory experimentation (either *in vitro*, or on the lower animals) and to apply these theories to medical practice. This is what is called the method of scientific medicine.

It is only natural that the first method should be most in favour with those whose activities are practical rather than didactic. But, unfortunately, the rational hypotheses of the practical man are invariably called fanciful by those persons whose pre-occupations are mainly academic, and whose notions are based, therefore, not on the shifting sands of clinical experience, but on the firm rock of chemical, physical, or physiological investigation. Yet the method of hypothesis is that which, in the hands of men such as Manson, has really opened up the vast field of tropical medicine; while the second is that which is responsible for what may be called the "boiled milk"

episode in pædiatrics. The one method is that of inductive logic; the second is deductive, and not always accurately so.

It is without doubt the modern habit of ignoring what in clinical experience is inconvenient that is accountable for the strange phases through which medical orthodoxy, in the matter of infant feeding, has passed of late years.

Now, an unfortunate consequence of these flickering changes in doctrine is that we have, throughout the country, stratified deposits of medical men. We meet with those who, trained before the nineties, have never believed in boiling milk; there are those of a later epoch, who believe in ebullition; there are the sworn pasteurisers; and most recent of all, those who disbelieve in boiling milk except on occasion. It is little wonder then that the public are getting bemused, and that heated arguments occur at surburban tea-parties on the merits of rival specialists, practitioners, and ordinances. Yet, there has been some measure of truth in most of the doctrines that have fluttered across the screen in these years; the disadvantage of this flickering thought is that it is so difficult to get a composite presentation, and so easy to be influenced by the impression of the moment.

It is so easy, for instance, to gibe at the poor for giving baby a bit and sup "of what we 'as."

Yet many a poor man's child has been, by bits from his father's plate, saved from the troubles that have attended those children of the rich who have endured a devitalised diet under high authority. Scurvy-rickets of what we love to call the "classical type" may be relatively uncommon; but the minor manifestations of the same condition are far more frequently met with than is recognised by those formal people who declare that one either "has a disease, or hasn't it."

It should be trite to say that the problem of infant feeding is one of maternal feeding. But it is not; and even the socialistic persons who asseverate it do not appreciate all that their statement implies. Without doubt the proper feeding of an infant is very largely secured or lost by the feeding of the mother, not merely from the moment of childbirth, but from the date of conception; yea, and earlier. It is obvious enough that, in a general way, not only the power of a mother to suckle adequately, but the assimilation capacity of the infant, depends on the state of nutrition during pregnancy. And there is another and more particular factor with which we have to reckon; the adequate stimulation, or the lack of stimulation, of the maternal glands, not merely by general feeding, but by par-

ticular substances; not merely during pregnancy, but during the years precedent to pregnancy.

Bertolotti, Citelli, Poppi and others have familiarised us with the notion that there is a great group of body-states that may be conveniently referred to as the dysostoses, that depend on pre-natal influences in large measure, and that are apparently manifestations of "humoral conditions" resulting from altered balance between the members of that wonderful complex into which the pineal, the pituitary, the accessory hypophyses, the thyroid, the thymus, the testicles, and the lymphatic glands all enter.

Extreme forms of these dysostoses are known to us as cases of achondroplasia, of cretinism, of "rachitism," of Mongolism, of "adenism" and so forth. But lesser departures from the normal, not deserving of these imposing names, are to be met with all around us.

Now there is not a little evidence that the polyglandular balance is profoundly modified by the presence or absence of almost infinitesimal ingredients in the ingesta.

We know, for instance, that a something, which so far has eluded detection, in water consumed by a mother, will determine a cretinous condition of her offspring. If so little may determine so much, may not the still less be responsible for a great deal also?

We admit that what the French call "*la misère*" is apparently one factor in the production of Mongolism. But is it certain that the lacking something that produces Mongolism is not really an ingredient commonly in default, no doubt in certain states of poverty, but also, though in lesser degree, sometimes where there is no actual poverty?

Funk has now apparently been able to show us that an almost incalculably insignificant particle of a pyramidine base is that which, *in absentia,* is a constant element in the causation of the polyneuritis of fowls, and of other disorders. It is not irrational to suppose that the presence or absence of at least as tiny amounts of other substances may be responsible for the grosser forms of "dysostosis." And if so, how much more elusive may be the quantities and qualities that may underlie the minor deviations from a normal balance?

We are getting used to the notion of hormones—substances insignificant in quantity, that determine glandular activities. But are all the hormones on which we depend for the keeping of an harmonious balance between our internal secretions autogenous?

Are not some of them derived from our food?

A number of years ago I delivered a young and healthy but

foolish young woman of an achondroplasic infant that was stillborn. The mother, who had been excessively annoyed at this, her second pregnancy, had lived for eight months on tea, biscuits, and a patent food, in order that she might keep thin, and not have a big baby.

It is difficult not to believe that the achondroplasia was connected ætiologically with the mother's dietary, for the first child was normal, and there has been a normal child since. I do not suggest that tea, biscuits and a patent food may, in themselves, be severally causes of achondroplasia. But it is hard not to believe that something was lacking that should have been present to stimulate the internal secretions of the unborn infant. This is an extreme instance, but it seems to give a clue to the understanding of lesser deviations from the normal, and of the various "rickety" conditions that are sometimes seen in breast-fed babies.

Moreover, it seems pretty clear that the defective suckling power of many mothers is due, not merely to quantitative under-feeding, but to lack, during pregnancy or after delivery, of what may be called biological galactagogues.

Farmers know that such things exist, even if our pharmacologists are sceptical. And I do not see how else one may explain that often when the usual prescription of abundant London milk has failed to promote lactation, a sound meal of underdone chops with a glass of good malt beer will successfully accomplish what the fat, sugar and proteid of no "milk-food" has been able to do.

It is not improbable that in a great deal even of the unboiled milk that is taken by mothers and by babies there is a hitherto unsuspected biological default. Orticoni and Lahache, in a suggestive note, have recently drawn attention to the profound difference that obtains (apart from what is shown by gross chemical analysis) between the milk of a cow fed on natural food of good quality, and that of one fed overmuch on oil-cake composed largely of fermenting copra. And here is a double lesson. When we investigate the suitability of a cow's milk for a mother or a child, we must not only assay the proportion of fat and of proteid and estimate the bacteriological purity, but the biological value as well.

A cow is an efficient milk-producer only by virtue of an immemorially prolonged process of selective adaptation to a natural environment, assisted by the intelligent empiricism of husbandmen. Of this environment, lush pasturage and sweet hay are no small part.

But if we feed our cows on copra that has lain fermenting on the

beach of a coral island, we are varying the environment; to put it mildly. We are interfering with the adjustment of the selected stock to its purpose. And when the food of a nation is changed in biological values, albeit the gross proportion of carbohydrate, fat, and proteid remains the same, or is even theoretically bettered, the adaptation of the people to their performance of natural or biological functions is seriously compromised. Yet this is what is being done, at great rate, for the town-dwelling masses of to-day. The "privileged classes," who do not recognise that their primary function is that of reproduction and nurture, are enabled to save their stirp some of the ill-consequences of over-civilisation, by invoking, as Royalty still does, the aid of a peasant woman to perform vicariously some maternal functions. Why does experience teach that it is best for a peasant to be summoned to perform functions which a mother may not, or cannot carry out? Why should not a town-bred product of civilisation and education be selected? Surely because the peasant, like the cow, is efficient biologically—is a result of biological adaptation to a natural environment, living on the food which has produced her race.

It does not seem unreasonable, then, to suggest that the solution of the problem of infant feeding is not a question of elementary chemistry, is not one in the hands of the bacteriologists, or even in those of the hospital physician or the medical officer of health, but lies in an acuter realisation of the importance of the biological factors at play; and in the biological qualities, not merely of the food given to mother or child, but in the biological values of the food on which the cows and other animals are nurtured that supply the human aliment.

It is as nothing to suppose that feeding the masses on a colourable imitation of the rich man's table will advantage the race.

The wife of a cottager is better fed, biologically, on whole meal bread, even if black; on fresh milk, even if skimmed; on home-made cheese, even if sour; and on oatmeal, even if savoured with salt only; than is her town-dwelling sister, on frozen mutton, tinned tomatoes, condensed milk, and packet tea. Even kitchen-maids will now have the "best lump" sugar in their tea. Their lives would be less chlorotic and constipated, and they would be better mothers in their turn, if they would be content with what the grocers call "pieces." Surely it is to the cumulative effect of little things that we have to look, rather than to the singling out of one causative agent. This is better realised by those skilled in flocks and herds than by theoretical meliorists.

It seems a pity that the custom of employing wet-nurses is not more generally adopted in this country by those who can afford it; but prejudice, for one thing, seems to militate adversely. In the absence, then, of an efficient mother, or a suitable foster-mother, appreciation of the biological factor in food compels the adoption of some "living food," as Dr. Poore used to say, in the place of the natural aliment of infants. And obviously, we first turn to cow's milk, in some modification or another. But there is, rather singularly, little appreciation of the milk of asses, although at least one herd of milch asses is efficiently maintained in London.

Since, however, for practical purposes, the milk of a good cow is most like that of a human mother, biologically if not chemically, it is to cow's milk that we must turn. But surely it should be axiomatic that any modification made of the milk supplied by the cow should involve as little interference as possible with what, until the chemists have made synthetic milk, we are bound to consider its vitalistic qualities; or with what the unlettered call its "nature."

And we must recognise to-day that, in spite of all the ink that has been spilt in the last twenty-five years or so, practical experience shows us that, if the child be healthy, and the cow well fed and kempt, far less modification is necessary than the ingenious tabulists have declared. After all it has never been shown that human milk varies during the months of lactation in accordance with the percentage tables that have been put forward so confidently.

No one can fail to be impressed by the wonderfully successful results that attend, even amongst the poorest, Dr. Langmead's plan of giving undiluted, unboiled milk to which a few grains of citrate of soda have been added. And of course there are many empirical people up and down the country who, beginning with simple dilutions, rapidly accustom babies to take plain cow's milk without any citrate at all. The fact seems to be that, if a healthy, well-cared-for child "starts fair," it may, in the absence of intercurrent bacterial infection, exhibit an elasticity and resourcefulness in digestion that is infinitely surprising to those whose experience has been chiefly amongst the poorer and most degraded, physically, of the population—the hospital out-patients—for whom too often the only accessible cow's milk, in summer time in London at least, is a horrible infusion of filth better displaced in favour even of "patent foods." But still, while realising to the full the truly brilliant results that may immediately follow the citrated whole milk plan, one has to remember that no method of infant feeding can be fairly assayed until puberty is either past or at least near at hand. It is not until the epiphyses are well on their

way to fixation, and the sexual glands have taken up their part in the polyglandular complex, that we can be sure that the foundations have been well and truly laid.

And if some statistician will but take the trouble to ascertain as fairly as he can the relative fertility and maternal efficiency, from the lactiferous point of view, of mothers who were artificially fed themselves, I feel pretty sure that he will find that there is a definite correlation between artificial feeding in infancy and the function of various glands in later life. I ventured to put this notion forward some years ago, but without any support. But Sir Shirley Murphy has recently developed the idea that the falling birth-rate is less dependent than has been generally thought on artificial restrictions, and I am glad to have his support thus far at any rate.

Of methods alternative to Dr. Langmead's, that which has served me best for the last twelve or thirteen years is the giving of unboiled cow's milk, diluted to some extent, with the addition, in small quantity, of some malted food.

And I have been interested to read a recent and very practical paper by Brady, whose experience is great, and who finds that the addition of malt and "polycarbohydrates" to the milk wherewith young babies are fed is highly advantageous, and gives him better results than any percentage method of feeding. As he says, experience must always over-ride theory.

There are two malted foods that are pre-eminently useful; the first contains dried milk, with malt, some converted starch, and now, I believe, added citrates. The second is a member of a well-known series of foods, and, though professedly compounded for children over six months or so, has been found from experience to be perfectly suitable for much younger infants. It has not, however, the advantage possessed by the food first mentioned of being preparable at a pinch, and in time of illness or summer heat, without fresh cow's milk.

It is not a bad plan, too, for the first fortnight of life, to use the malted milk made with water alone in any case—a small teaspoonful of the powder to the ounce or more. Then when the meconium has been all cleared away and the body-cells have had ten days or so to accustom themselves to the malt and dried milk, fresh milk can be introduced gradually in increasing quantities, by weekly or fortnightly half-ounces, till, at the end of six months, the child is taking nearly or quite undiluted fresh cow's milk, with a not very greatly increased quantum of the added powder.

The plan is quite simple, and the rationale intelligible. Malt

itself has a biological value : it tends to affect favourably the massing of the curd ; it is slightly laxative, and as a fat former it compensates, if compensation be needed, for any deficiency in cream. The stools are perhaps rather bulky when it is taken ; but they are yellow, and resemble those of one who is well sown with *B. bulgaricus*.

If either variation in the child's health or in the supply of cow's milk demands it, modification can be easily made. In intercurrent illness, or when travelling, the meal can be prepared with water only ; if there be any looseness of the bowels, the proportions of cow's milk may be increased ; if there be constipation, more water or more powder may be given. If the cow's milk be poor, let the mother make the food with top milk, or add a little cream, or increase the amount of powder given.

I have used the method in several hundred cases that I have been able to follow up, and have seldom had any failures—hardly any, perhaps, when there has been loyal co-operation on the part of nurses, and non-interference by friends. Many of the children so fed have now passed well into their second dentition and are within hail of puberty. I have seen no case of rickets that has been thus fed, and the first dentition has been capital, though perhaps not early.

At seven months children so fed are usually ready for some promotion, and can digest farinas in good time.

But alarums and excursions are frequent in pædiatric practice, and perhaps a few practical suggestions will bear setting down in print.

Albumin-water, of course, is well enough, but in practice amongst the poor it is not always found to be "understanded of the people" : eggs are hard to come by, and seldom fresh. Moreover, since no boiling is involved in its preparation, the dirtiness of utensils may result in putrefactive microbes, at least, getting in with the food.

But even the very poor can as a rule get a few pennyworth of arrowroot from the chemist, and a little goes a long way. Only it must be Bermuda arrowroot, and from the chemist. Otherwise it is a delusion and a snare. A little Bermuda arrowroot, well boiled, and taken nearly cold, is of the greatest advantage when food has to be given in acute diarrhœal disorders, after the preliminary clearance has been accomplished. Moreover, as the child picks up, the arrowroot can be boiled with broth, and so the day of return to the peccant cow's milk staved off. Not once, but many times one has found children thrive for weeks and even months on a diet of broth thickened with arrowroot (boiled in it, and sweetened with a little sugar). Indeed, the use of broth (especially veal broth) seems to be often

neglected, and one has marvelled to see, even at distinguished clinics, mothers scolded vehemently for having given it to their children instead of milk in the summer. Yet, however much one may believe in the necessity for milk, there are few summers in which it is not necessary, for a few weeks, either to boil the milk or to prohibit its use. And the change to broth, either of veal or mutton, is often advantageous. The best way to make mutton broth is to take a breast of mutton, and to prepare the broth from it after splitting up the sternum and ribs. The broth that is then prepared contains not only albumin and fat, but marrow and minerals as well as gelatine; and it is anti-scorbutic in a way that boiled milk is not.

The importance of giving gelatine to the infant seems another point that is frequently ignored. Practically, there can be no question of its expediency oftentimes. A tiny infant, in times of sickness, will benefit by a few spoonfuls of plain jelly made at home from packet gelatine; and for those a little older the jelly into which good broth sets may be advised. Since both these forms of jelly melt at a low temperature, they easily slip down the throat. But milk-jelly, highly valuable as it undoubtedly is, does not melt, and has to be swallowed almost as a solid. Any child who can digest cow's milk can, of course, digest both junket and milk-jelly; the absurd reproach that I have known addressed, in surreptitious consultation, to mothers,for having given "such improper solids" as junket and jelly, seems, then, a little undeserved. Indeed, since junket is virtually a natural modification of cow's milk, one would, *à priori*, expect it to be, as it is, of the greatest practical value. Nor should either milk or buttermilk be forgotten. Both have their values, and practical acquaintance with the details of whey-making will serve the practitioner in good stead. Incidentally it may be pointed out that milk which will not make good junket (and, of course, good whey) is of indifferent biological value, and to be prohibited, whatever its bacteriological purity or chemical composition.

This is a piece of grandmotherly lore worth bearing in mind, as is, too, the old-fashioned plan of adding to junket, broth, or other foods, a little powdered nutmeg or cinnamon. Cinnamon is an excellent antiseptic and astringent, and the judicious use of such spices in foods saves the necessity for giving them in medicines.

Again, in dealing with the case of children in their second year, hospital experience seems to load the dice a little unfairly against the vigorous middle-class baby. If questioned: On what should a child of a year and upwards be fed? the reasonable rejoinder is to

ask on what the child has been fed. For, within limits, the digestive capacity of the yearling is determined by the *régime* it has undergone in its first months of life. And, provided that it is well forward with its teeth, and the food offered it is good of its kind and properly prepared, a healthy child, who has not been kept back on peptonised food and so forth at first, can, later on, take many things with advantage that little books advise mothers to withhold. Many mothers, too, are met with who declare that they have been told by imposing authorities not to give this, that, or the other, but beef-tea or raw meat-juice instead. And so one sees children growing up unable to chew, with teeth falling into decay from lack of use, with imperfectly developed jaws, with stomachs that secrete no pepsin, and with salivary glands that secrete no ptyalin, and with livers harried by the totally unnecessary extractives given them in their beef-teas. When the mother's watchword is No fat, or No sugar, or No meat, the result surely is a lop-sided metabolism that does not find expression in those who are fed on a judiciously mixed diet.

The worst of it is that mothers are so apt to become obsessed by the importance of carrying out *in perpetuum* what may have been advised as a temporary expedient with success. And the results, in later years, of perverse adhesion to advice proffered in the course of a single consultation are seen, not seldom, to be most unfortunate.

That bacon-fat is digestible is a bit of practical knowledge that might be more often applied than it is. Cream is hard enough for anyone to come by in London. But cold boiled bacon is within the reach of almost all. Many years ago, when doing *locum* work in Wiltshire, I used to see mothers cut off a hunk of cold bacon fat, bore a hole through it, and suspend it round baby's neck with a piece of string. Baby would suck away all day at the plug of fat like an Eskimo with his blubber, and, what is more, thrive on it. Surely far better than a comforter! And anti-tuberculous to boot.

We appreciate the necessity of keeping fat if we want to keep the *B. tuberculosis* at bay; but the teachings of Robin in respect of demineralisation ought also to be borne in mind when considering the requirements of young children. For whenever there is tuberculisation, there is demineralisation of the system; and demineralisation itself is no small encouragement to the bacillus. There can hardly be question of that. Probably not only does part of the value of whole meal bread lie in the mineral salts that it contains, but much also of the value of the practice of boiling barley

and rice in stews and broths which may be, after straining, given to young children. And bigger children, were it not for the sake of company manners, might well be taught to eat the skins of their apples, and the jackets of their roasted potatoes, to say nothing of the "skin" of fish like plaice. The importance of the mineral salts in food articles is, however, perhaps two-fold. There is the necessity for a supply of material to be incorporated in the bones and cartilages (and Robin has insisted on the need for fluorine and silicon), and there is also the question of the stimulating action of the minerals, or certain of them, on the pituitary and thyroid glands. The old-fashioned, tall, bony, high-cheeked Scotsman was undoubtedly a hyper-pituitary person; but his descendants, who despise the "curny aitmeal," are losing the racial characteristics. There is, indeed, a very great deal of sound philosophy in the recent paper by Dr. Stewart Mackintosh in the 'British Medical Journal,' anent "Native Air." A great deal that he says about native air may well be read in connection with "native food."

What is true of the cows is also true of the human race.

A nation, or a tribe, if not a family, rooted on the soil, has become what it is by adaptation to a particular environment, of which the food and drink of the locality is not the least important feature. With alteration in feeding habits, racial characteristics—and not only those which are physical—become altered.

Food habits and, *ergo*, racial characteristics, linger longer amongst the peasantry that in any other class. In England, political and social changes have altered the food habits of the poorer classes at an alarming rate of recent years. It has almost become a creed with some that the less wealthy should abandon the food habits of generations. And so, though we still recruit our police force from the rural districts, each year we have to cast the net wider in order to bring in an adequate number of young men up to the proper standard.

How it is to the remotest and poorest districts that we have to fling the net, because it is only there that the peasantry are, without knowing it, refraining from interfering in the natural processes of adaptation to environment in the matter of food. But, of course, in London the whole environment is changed, with what results all may see who think.

The question of infant feeding is, then, one of infinite complexity. If we have to look back for generations to trace the source of some of our difficulties, so also we have to look far ahead when considering the ultimate result of the measures we advocate.

And yet, it may be that the stomach-ache of the Belgravian baby of to-day depends on the ingestion, by a cow in Wiltshire, of ketones that originated in copra drying on a Polynesian beach. Unconscious appreciation of the biological, or of one of the biological values—the hormonic—of food is shown when the farm-hand swallows the testicles of the animal that he castrates, and the Sussex fisherman scrapes the spawn from the living lobsters that he finds in his baskets. Nay, it is not improbable that there is justification, from this point of view, in the cannibalism of Africans, and the more disgusting practices of Australian aborigines. The hormones absorbed are, if not autogenous, at least homologous. And obviously, mother's milk has an homologous hormonic value. But there are two other biological values of food, of which one at least certainly pertains to breast-milk. Both these values have relation to defence against microbic infection. The first is sufficiently indicated by the suggestions, of Rost for the case of leprosy, and of Manaud for the case of beri-beri, that the growth of the microbe does in the former case after all gain encouragement from a fish diet, and that the substance which Funk has isolated, in the second case, is one which may be absent from the dietary without beri-beri occurring if there be not the intrusion of a contagious element. It is at any rate clear that seemingly inconsiderable chemical substances may play an important part in the defence of children or infants against microbic infection.

But in a valuable essay Maunu af Heurlin has recently collated many facts which show us that specific antibodies pass from mother to fœtus through the placenta, and also even more easily from mother to child through the milk. Moreover, if a hen be submitted to antigen, a specific antibody may be recovered from her eggs. Such findings as these must make us consider what may be the effect of giving infants milk which, though it does not contain living tubercle bacilli, may yet contain inactivated thermostabile antibody. Practically, then, our lesson is that healthy infants are best secured by feeding the mothers. But in estimating the value of foods for mothers we must disregard both false social standards and incomplete laboratory results. We must select the foods which are least interfered with in manufacture or in cooking; and in general it is the food of the country that is best for the people of a country. If any logical person cares to point out that there is no "food of the country" for the Londoner, born and bred, I will not quarrel with the deductions that may be legitimately made.

Bibliography.

Brady, J. M.—'Amer. Journ. Dis. Child.,' 1912, iv, p. 89.
Brown Lauzun, W.—'Brit. Journ. Child. Dis.,' 1912, ix, p. 214.
Crookshank, F. G.—'Essays and Clin. Studies,' London, 1911, pp. 221–5.
Funk, Casimir.—'Journ. of Physiol.,' 1912, xlv, p. 75.
Manaud.—'Bull. Soc. Path. Exot.,' 1912, vii, p. 514.
Maunu af Heurlin.—'Arch. Mens. d'Obst.,' 1912, i, p. 497.
Murphy, Sir Shirley.—'Lancet,' 1912, ii, p. 352.
Orticoni and Lahache.—'Presse Méd.,' 1912, xx, p. 297.
Poppi and Citelli.—'Univ. Med. Rec.,' 1912, ii, p. 245.
Watkins-Pitchford.—*Ibid.*, p 157.
Watson, Chalmers.—'Quart. Journ. Exp. Physiol.,' 1912, iii, p. 229.

THE CUTANEOUS REACTION TO TUBERCULIN IN CHILDHOOD.

By C. Paget Lapage, M.D., M.R.C.P.,
Physician to the Manchester Children's Hospital.

Apart from subcutaneous injection, various methods of applying tuberculin for diagnostic purposes have been recommended. For practical purposes the cutaneous method of von Pirquet is, in children and out-patients at any rate, by far the best, being safer, easier, and probably more reliable than the conjunctival, while the intradermal method is painful and less easy to perform.

S. von Ruck gives the following figures, which show that the cutaneous test approximates more closely in its results to the subcutaneous than does the conjunctival.

		Number giving a reaction.		
	Cases.	Tuberculous. Per cent.	Suspects. Per cent.	Non-tuberculous. Per cent.
Subcutaneous	7088	89·88	63·34	51·30
Conjunctival	6449	79·20	57·80	13·73
Cutaneous	6504	85·59	67·48	31·62

Technique.—This is now well known, but one or two points must be emphasised.

Until recently 25 per cent. tuberculin, applied after the epidermis had been removed as in vaccination, was recommended, but MacNeil has found better results from undiluted tuberculin rubbed into the unbroken skin. In the majority of cases 25 per cent. tuberculin is strong enough to be reliable, but a few cases which do not react to a 25 per cent. solution give a reaction with undiluted tuberculin. On the other hand vesiculation may follow the use of undiluted

tuberculin in cases which react strongly, and this is an unpleasant though ultimately harmless complication.

Although 25 per cent. tuberculin was used in my cases, my figures show a rather higher percentage of positive results than MacNeil's, probably because they include more of those which were suspicious clinically.

On the whole I am inclined to think that MacNeil's method is the best on account of its greater reliability, but the tendency to cause vesiculation is certainly a disadvantage, and my experience has not yet been great enough for me to make a final judgment.

Since in some cases the reaction may come and go within a few hours and in others may be delayed, it is advisable to see the child at least once daily, and also within six hours of the application of the tuberculin, if possible. In practice this is often difficult in dealing with out-patients, but the child should be seen on the first and second days following the testing and again in a week's time, and special watch should be kept on doubtful cases.

A large number of tests made to show whether the fluid used to dilute the tuberculin or the manipulation of the skin could cause a reaction gave negative results in practically every case, and it can be assumed that a solution of 20 per cent. glycerine and 0·5 per cent. carbolic acid very rarely has any effect in causing a reaction. The results are treated in detail later. Other results also given later will show that a single negative test is not conclusive, and that a repetition is necessary before tuberculous infection can be excluded.

Specificity.—The evidence, gathered from comparing the results of tuberculin tests, post-mortem records and clinical examinations, taken together with experimental evidence shows that the test is specific.

Many of the criticisms levelled at the test have been founded on faulty premises, faulty interpretations and faulty technique. It is not possible to enter into details here, but von Pirquet, Hamburger and Monti, Nothmann, Comby and many others give figures showing the frequency with which a reaction is found at different age-periods; and, properly interpreted, their results agree. Further, these results agree with pathological findings, as can be seen from figures given by observers in all parts of Europe and America.

K. von Ruck, Irimescu, Mantoux, Lord, Lawrason Brown and others all bring forward experimental evidence of the specificity of the test. I cannot summarise better than by quoting von Ruck, who says: "The specific nature and value of tuberculin as a diagnostic agent do not appear to be refuted by the objections which have been raised against it. The minimal amounts in which it is active, the

negative results obtained by all three methods of applying it to the newborn, the increasing comparative frequency of positive reactions with advancing age in their approximate harmony with autopsy findings in the non-tuberculous as well as the tuberculous, the occurrence of focal reactions following subcutaneous injection and conjunctival instillation all testify to its reliability," and, I might add, sum up the case as to its specific nature.

Nature.—The nature of the reaction is not yet decided. Von Pirquet holds that the reaction is due to the presence of antibodies in the blood, Wolff-Eisner supports the theory of bacteriolysins. The differences between the two theories are too difficult and complex to be dealt with here, and probably the explanation given by Riviere and Morland is the most satisfactory. They state that the tissues of the tuberculous produce a specific antibody (lysin or tuberculo-lysin) capable of breaking down the tuberculin molecule with the formation of toxic products. If no lysin is present the tuberculin simply circulates as a harmless foreign albumen.

Definition of reaction.—The reaction consists of redness and swelling of the spot inoculated, the inflammatory process often extending over a larger area than that originally scratched. Rarely the swelling may go on to vesiculation or pustulation.

Pathology.—According to Wolff-Eisner microscopic examination of the inflamed area shows an accumulation of lymphocytes and a few giant-cells. The exudative and infiltrative lesions occur in varying intensity, the changes partaking of the nature of the actual disease and only being quantitatively less; they are due to the presence of endotoxin, but do not go as far as the actual disease because no bacilli are present.

Forms.—The reaction occurs in several forms.

(1) The ordinary reaction, which appears within twelve hours (four to six hours according to Wolff-Eisner), is at its maximum intensity in twenty-four hours, remains at its maximum for one day and then gradually fades, disappearing about the third or fourth day. A slight redness may remain for a week or more.

(2) The rapid and ephemeral reaction, which appears within a few hours, reaches its maximum in ten to twelve hours and disappears within twenty-four to forty-eight hours. This reaction may readily be overlooked.

(3) The strong and lasting reaction, which appears about the same time as the ordinary reaction, may take two or more days to reach its maximum, remains at its maximum for some days, and then very slowly fades away.

(4) The delayed reaction, which does not appear for one or even two days after inoculation, when it does appear is often quite well marked and may last for several days or weeks.

The "stichreaction" is the reaction left by the tuberculin which reaches the track of the needle when tuberculin is injected, and the "depôt" reaction is the infiltration and thickening to be felt when tuberculin is "deposited" at the site of injection.

The cutaneous test in 1000 *children of all ages up to fourteen years.*—To determine the value of the cutaneous reaction in the diagnosis of tuberculosis in children, I have collected and analysed the results of the tests in 1000 children. These have been chiefly children showing indefinite signs which may point to tuberculosis, and have been of the class that usually attends a hospital. Most of the cases have been attending as out-patients, but for the last two years every case admitted to my ward has been tested: these tests, some 200 in number, are included in the 1000 and are also analysed separately, when the relation between human and bovine tuberculin and the degree of reaction are considered. All the cases tested have been carefully examined clinically by the ordinary methods of physical examination, and tables will follow to show the relation between the test and the result of the physical examination.

The cases have been classified according to the result of the clinical examination into five groups as follows:

(1) Negative cases, with no signs or symptoms and with no opportunity of infection in the house.

(2) Possible cases with neither signs nor symptoms or with very unimportant symptoms such as pallor and slight debility, and in some cases with a history of possible infection in the house.

(3) Suspicious cases with no physical signs but with pallor and debility, some loss of flesh and indefinite cough, and in some cases a history of infection in the house.

(4) Probable cases with no physical signs but with symptoms and a family history that point to a tuberculous illness.

(5) Definite cases in whom the physical examination is conclusive or the sputum gives positive results.

Before we proceed to a detailed analysis of the results it will be of advantage to recapitulate briefly the ideas at present put forward with regard to the meaning of a reaction or to a negative result to the test. It is held that a reaction indicates that the individual has been infected with tuberculosis. On the one hand, the body may have successfully resisted the disease and may have reduced the tubercle bacillus to a state of inactivity so that there are no symptoms

of tuberculosis, or, on the other hand, the disease may have continued to be active. In either case the tissues will react to tuberculin. There are exceptions to this rule, because many cases of advanced tuberculosis with cachexia, and many cases affected at the time by an acute disease such as measles or by a mixed infection, fail to react. Excluding these two exceptions and excluding faulty technique (by a repetition of the test in the same or in another form) a negative result to the test indicates that no tuberculous infection has occurred. Some observers hold that the intensity of the reaction helps us in diagnosis and prognosis: others, again, hold that either the strong form of reaction or the prolonged form indicates a high resisting power, and are, therefore, of good prognosis. We shall consider these points later.

Others hold that treatment with tuberculin may gradually reduce the intensity of the reaction until it reaches vanishing point, but my experience has been that the reverse is the case and the reaction is increased by tuberculin treatment.

Keeping these points in mind, we shall now proceed to analyse the 1000 tests.

The reaction in relation to the age of the child without regard to the clinical condition is shown in the following table, which comprises 1000 children of the hospital class up to fourteen years of age who were patients on the medical side, and of whom a large proportion showed general debility.

Age	0–2 years.	2–5 years.	5–10 years.	10–14 years.	
Reaction present	33, or 32 per cent.	107, or 51·2 per cent.	270, or 60·6 per cent.	147, or 60·8 per cent.	= 557
No reaction	70, or 68 per cent.	102, or 48·8 per cent.	176, or 39·4 per cent.	95, or 39·2 per cent.	= 443
Total number tested	103	209	446	242	1000

This table shows that the number of children reacting to the test increases steadily with advancing age, although probably the increase of infection is not so rapid after the tenth year. Comparing these figures with those of other observers, we have already noted that Hamburger and Monti found the reaction in at least 50 per cent. of children in an hospital for infectious disease. My cases, being hospital patients, and being more or less selected, should show higher proportions giving a reaction.

Before quoting the figures of other observers and comparing them with mine I have recorded the following figures, in order that we may note the difference made by a selection of cases, and incidentally note that the reaction occurs more frequently in the more suspicious

cases. As the testing proceeded more of the less suspicious cases were tested and fewer of those definite or probable on clinical examination, so that a larger number did not react. Thus the first 517 and last 483 yielded the following results :

Age-period.	0–2 years.	2–5 years.	5–10 years.	10–14 years.
First 517	16 +, 31 — (66 per cent.*)	65 +, 47 — (41 per cent.)	144 +, 90 — (38·4 per cent.)	79 +, 45 — (36·2 per cent.)
Last 483	17 +, 39 — (69·6 per cent.)	42 +, 55 — (56·7 per cent.)	126 +, 86 — (40·5 per cent.)	68 +, 50 — (42·3 per cent.)

1000

These figures show that in the less suspicious cases comprising the last 483, a smaller percentage of children reacted at each age-period.

The results in relation to the clinical condition and the age-periods are as follows :

(A) *For those not giving a reaction.*

Age-period.	Total number tested.	Clinical examination.				
		Negative.	Possible.	Suspicious.	Probable.	Positive.
0–2	68	31	24	8	4	1
2–5	102	26	42	16	9	9
5–10	180	40	61	44	18	17
10–14	95	25	31	23	8	8
	445	122	158	91	39	35

(B) *For those giving a reaction.*

Age-period.	Total number tested.	Clinical examination.				
		Negative.	Possible.	Suspicious.	Probable.	Positive.
0–2	34	6	10	8	7	3
2–5	103	11	22	25	18	27
5–10	275	19	56	80	44	76
10–14	143	21	26	30	16	50
	555	57	114	143	85	156

These figures show in tabular form the relation of the test to the clinical examination. It can be seen at once that the two examinations give similar results in a large proportion of cases ; the frequency of latent or undiagnosable tuberculosis explains why the figures do

* The percentages refer to the proportion not giving a reaction.

not show a closer correspondence. In the table relating to those not giving a reaction the larger numbers are all at the negative or possible side of the table, and a converse relation may be seen in the table relating to those cases giving a reaction.

The following Table A gives a complete analysis of all the cases according to age-period, clinical examination and result of the test, and if, as in Table B, the figures are so multiplied that the numbers for those giving a reaction and those not giving a reaction are made practically equal, we can again compare the relation of the test to the clinical examination.

Table A.

Age-period.	Reaction.	Total number tested.	Clinical examination. Negative.	Possible.	Suspicious.	Probable.	Positive.
0–2	+	34 +	6	10	8	7	3
	−	68 −	31	24	8	4	1
2–5	+	103 +	11	22	25	18	27
	−	102 −	26	42	16	9	9
5–10	+	275 +	19	56	80	44	76
	−	180 −	40	61	44	18	17
10–14	+	143 +	21	26	30	16	50
	−	95 −	25	31	23	8	8
Totals	+	555 +	57	114	143	85	156
	−	445 −	122	158	91	39	35

Table B.

Age-period.	Reaction.	Total number tested.	Clinical examination. Negative.	Possible.	Suspicious.	Probable.	Positive.
0–2	+	68 (34 × 2)	12	20	16	14	6
	−	68	31	24	8	4	1
2–5	+	103 +	11	22	25	18	27
	−	102 −	26	42	16	9	9
5–10	+	275 × 2	38	112	160	88	152
	−	180 × 3	120	183	132	54	51
10–14	+	143 × 2 = 286	42	52	60	32	100
	−	95 × 3 = 285	75	93	69	24	24

Again we see that if we still bear in mind the frequency and nature of tuberculous infection in children, the relation between the two methods of examination is substantially a close one.

Or if we take the figures * in percentages, we find the following results in children giving a reaction.

* These figures are based on the results of 924 tests.

Age.	Clinical examination. Negative. Per cent.	Possible. Per cent.	Suspicious. Per cent.	Probable. Per cent.	Definite. Per cent.
0–2	14·7	29	50	63·6	100
2–5	31·4	33·8	63	66·6	74
5–10	30·7	48·6	66	70	83·1
10–14	51·2	47·2	52·1	66·6	87·7

These figures show two points:

(1) The reaction occurs with a steadily increasing frequency as the clinical examination progresses from negative to definite.

(2) Since the table shows that, the older the child is, the higher is the percentage of clinically doubtful cases giving a reaction, there is greater difficulty in diagnosing tuberculous infection after the age of two years by clinical examination. This is explained by the fact that in older cases tuberculous infection is very common and is not the cause of the illness under consideration. On the other hand, in infants up to the age of two years, an infection has such marked results and is so often fatal that the clinical diagnosis is more easily made.

Thus we see that as indicating a tuberculous illness the test is likely to be of greater value in young than in older children.

Degree of reaction.—The various degrees of reaction may each have a separate meaning. Wolff-Eisner's views are as follows: (1) A strong reaction indicates primarily a highly developed resisting power at the time the reaction is taken. It follows that the strong reaction is most likely to occur in cases who exhibit a healing tendency and suffer from a slowly progressive or arrested form of tuberculosis. Still it must be noted that the strong reaction points primarily to high resisting power at the time, and does not guarantee that that high resisting power will not be exhausted if, and as, the disease progresses. (2) A rapid and weak reaction indicates a quick intensification of the disease and an early death, because the resisting powers are low and the system is already saturated with tuberculin. (3) The late and lasting reaction points to a latent tuberculous centre. In these cases, although the resisting powers are high, there is little bacteriolysin actually present in the blood at the time the test is made, and, as the amount of this substance gradually rises, the reaction increases.

McNeil holds that a late reaction indicates wide-spread disease and a mixed infection; he states later that it is his general impression that the intensity of the reaction varies directly with the vigour of the patient. Calmette states that the reaction is more intense when the infection is recent and the defensive powers are good. Von Pirquet

holds that the reaction is more intense if infection is very recent or if progression of the disease has just started. Rozenblat holds that there is no relation between the local reaction and clinical forms of tuberculosis nor between the sensitiveness of the organism and the extent of the tuberculosis. She describes a cachectic reaction, which is faint, with no infiltration, and indicates advanced tuberculosis, and a torpid or delayed reaction which indicates latent tuberculosis.

It is established that there is no reaction in many cases of advanced tuberculous disease exhibiting cachexia and in many cases of mixed infection, and on the whole the form of the reaction seems to have some relation to the resisting powers to the disease.

In those cases tested in the ward it was possible to watch the reactions closely and to follow their course. In some cases the reaction was of ordinary intensity, in others it was classified as slight, strong or prolonged. An analysis of these in relation to the clinical examination gives the following results :

Clinical examination.	Reaction.
24 negative	9 ordinary 11 slight 3 strong 1 prolonged
39 possible	25 ordinary 12 slight 1 strong 1 prolonged
31 suspicious	19 ordinary 7 slight 4 strong 1 prolonged
13 probable	11 ordinary 1 slight 1 strong 0 prolonged
41 definite	28 ordinary 3 slight 5 strong 5 prolonged
Total, 148	92 ordinary 34 slight 14 strong 8 prolonged

These results are based on too small a number of cases for general conclusions, but they do give indications as regards the slight and prolonged reactions. Slight reactions seem to occur with greater frequency in cases negative or possible clinically and prolonged reactions in cases of definite tuberculosis. But it should be noted that prolonged reactions tend to occur in cases of abdominal or glandular tuberculosis, which are easy of diagnosis and are therefore classed as definite cases. We must also take into account the amount of tuberculin applied.

(*To be continued.*)

A CASE OF RHEUMATOID ARTHRITIS IN A CHILD.

By Walter R. Jordan, M.D.,
Hon. Physician, Children's Hospital, Brmingham; Visiting Physician, Dudley Road Infirmary, Birmingham Union.

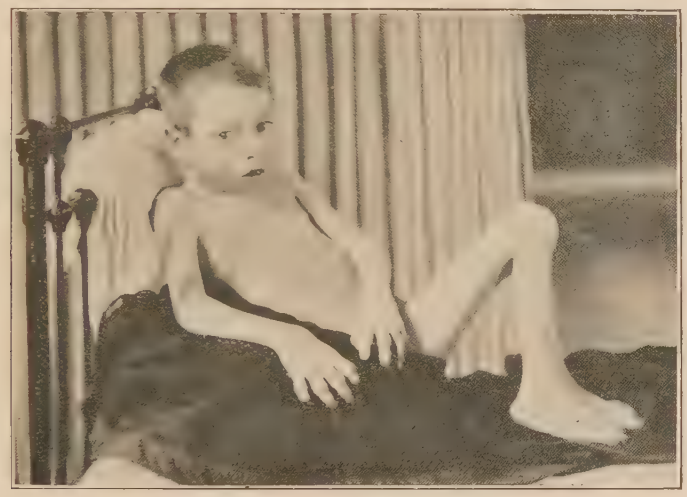
J. W. B—, a boy, first came under my notice when, at the age of 6, he was admitted into the Children's Hospital on June the 3rd, 1910. He was then a well-nourished child, with no obvious anæmia, but a fairly bright colour; the skin dark and rough. On the back of each hand just below the wrist was a fluctuating swelling, neither painful nor tender; there was no power of extending the hand and the grip was decidedly feeble. There was perhaps very slight enlargement of the left knee. Both ankles were slightly swollen; there was some œdema of the dorsum of each foot; none of the joints was tender.

In the abdomen the liver was palpable three fingers' breadth below the costal margin. Examination of the thorax and of the urine showed no abnormality. There were small rather hard glands to be felt in both axillæ and groins.

The history of the case was that there had been no previous illness at all. The only point of interest in the family history, which was a generally healthy one, was that the maternal grandmother died at the age of fifty-five, having had rheumatism for ten years and being much deformed in the hands. Fourteen days before admission he had had swelling of the neck for two days, then of both shoulders for three or four days, then of the back of the knees, then of the feet; five days before admission his wrists swelled. He had become unable to walk two days before admission. There had been no vomiting, no sore throat, no sweating: he slept badly, his appetite was bad, and he

was constipated, the last condition being habitual, though he never went more than two days without an action of the bowels.

For the first eighteen days after admission the child's temperature was never above normal, and was often as low as 97° F. On June the 21st there was a slight rise of temperature, and on June the 23rd 101° F. was recorded; during the rest of his stay the temperature was very irregular, reaching 100° to 101° on three or four days and being very often subnormal. At the time when the slight pyrexia began there was also noted irregularity of the heart; no enlargement, no murmurs, but reduplication of the pulmonary second



sound. By July the 10th these cardiac symptoms had improved, and on July the 26th the boy was discharged, able to walk, his heart normal, and all his joints normal except that there was still some puffiness on the backs of the hands. His temperature was unsteady, and had been from 100° to 99° in the morning up to within two days of his discharge.

I myself went away for a holiday on July the 18th; I do not think I should have consented to his discharge with such a temperature, but there was great pressure on the beds.

Treatment while in the hospital consisted in salicylate of soda gr. x, with sod. bicarb. gr. x and sp. ammon. arom. ℥x, three, four, and then five times a day. Salicylate was discontinued on July the 1st, but resumed on the 12th, three doses daily being taken. An iron and strychnine mixture after meals was added a few days later.

Looking back I feel now that there should have been greater

determination in pushing salicylate, and that the discharge from hospital in my absence was unfortunate. The label of "rheumatism" attached to the case was perhaps the only one possible at the time.

I lost sight of the boy until April the 24th, 1911, when he was admitted into the Birmingham Workhouse Infirmary under my care. He had in the meantime been treated at other institutions, his knees had become fixed in a position of flexion, his hips were slightly flexed, and fusiform swellings of the phalangeal joints had developed, while the ganglion-like swellings of the backs of the hands had become very marked. He has remained in the infirmary ever since, and his present condition (August the 12th), is as follows:

Age, 8 years; weight, 2 st. 5½ lb. Fair clear skin, no appearance of anæmia, no pigmentation, no sweating; very little subcutaneous fat, no subcutaneous nodules; marked muscular wasting.

Teeth and gums clean and healthy, tongue clean, appetite good; no vomiting; one motion daily, normal. Abdomen normal; neither liver nor spleen palpable (the spleen has not been palpable at any time).

Lungs normal. Heart normal, but rhythm rather quick.

No glands to be felt in the neck. In the right axilla two or three glands palpable, varying in size from a pea to a bean; in left axilla a rather better marked group of from six to eight glands; in the groins a few minute glands.

In the *shoulders* movement is fairly free, more so in the right; no apparent deformity.

The right *elbow* can be flexed to about 45°, the left to about half that extent; neither can be fully extended; there is general swelling of the right elbow, particularly about the head of the radius, and to a less degree of the left.

The *wrists* are in a position of slight flexion and there is very little movement, the right having more than the left. There is slight general swelling over the carpus on the left; marked, with ganglion-like distension, on the right.

The *metacarpo-phalangeal* joints on the left are freely movable, fairly so on the right; on the right there is enlargement of the first, second and third joints, on the left of the first and second.

The *phalangeal* joints on both sides show marked fusiform swelling with a fair range of movement, but incapability of full extension.

The *hips* are kept flexed and have scarcely any movement; there is no apparent deformity.

The *knees* are kept flexed at an angle of 45° and have scarcely any movement; the inner side of the left tibia appears to be enlarged.

In the *ankles* there is a little movement; no marked deformity.

Of the *feet* there is no obvious deformity, but the left foot is generally larger than the right.

There is no special fixation or deformity of the back and movements of the neck are free. The patient can sit on a chair if the pelvis is held, and in bed sits habitually bent forwards.

The sterno-clavicular joints are enlarged with, apparently, synovial effusion.

There is no pain, except when attempts are made to move the limbs beyond the limits indicated.

There has been no pyrexia for some months, but the temperature is not steady, varying from normal to 97° F. There was, however, a mild pyrexia up to 100° for three weeks, beginning two months after admission; this may have been due to constipation, which was present from admission, having become more marked again after some improvement. Its subsidence coincided with the success of a change of treatment for the constipation. Another period of pyrexia was definitely associated with a change in the general treatment.

The treatment has been salicylate of soda combined with bicarbonate of soda in increasing doses. At the present time the following mixture is being taken and has been since February the 20th, 1912: sodii salicyl. gr. xx, sodii bicarb. gr. xl, sodii sulphocarb. gr. v, aq. menth. pip. ad ℥ss, *quinquies in die sumend.* From August the 29th to September the 19th, 1911, salicylate treatment was discontinued and pot. iod. gr. iij with liq. arsen. ♏iij given thrice daily. Almost immediately the temperature rose, reaching 101° on the sixth day, and the pyrexia persisted, to subside quickly on the resumption of salicylate treatment.

Constipation is now avoided by giving twice a day ext. casc. sag. liq. ♏x, tinct. belladonnæ ♏iv, tinct. nucis vom. ♏ij, aq. menth. pip. ad ʒij. Pain and pyrexia are prevented by the salicylate mixture, but the ankylosis and the deformities remain unchanged except that the fusiform swellings of the fingers have become rather less. A skiagram by Messrs. Hall Edwards and Emrys Jones on October the 12th, 1911, shows little, if any, bony enlargement.

Massage, passive movements and continuous extension have failed to bring about any more free movements of the limbs.

The outstanding feature of the case seems to me to be the palliative effect of salicylate of sodium, and I believe that if it had been steadily pushed from the beginning the ankylosis and the deformities might have been avoided or much lessened, although it is not usually believed to be of much use in the treatment of this disease.

Société de Pédiatrie, Paris.

June, 1912. (*Bulletin No.* 6.)

Lesions of Interarticular Cartilages in an Achondroplasic, aged 3 years.—M. Leon Tixier.—The autopsy showed no appreciable naked-eye changes; the line of ossification was neither more or less sinuous nor irregular than normal, but the blue line, corresponding to the normal zone of ossification, was so thin in places that it almost seemed absent. Microscopically the epiphysial cartilage contained less cartilage-cells than normal. The spaces in the spongy portion were larger than normal and filled with a large quantity of bone-marrow. The fat-cells were more scanty than usual; the myelocytes and nucleated red cells exceeded the other cellular varieties. These medullary changes were more probably connected with the bronchopneumonia which caused the death of the child than with the achondroplasia. In the neighbourhood of the line of ossification on the cartilage side, the cells were devoid of proliferative activity. The line of ossification itself was reduced in size. The speaker contrasted rickets as a true hyperplastic dystrophy, with achondroplasia, a hypoplastic dystrophy.

Osteomalacic Deformities in a Boy, aged 9 years.—MM. Tixier and C. Roederer related the case of a boy who presented none of the ordinary signs of rickets, and who, at the age of four years, had for the first time pains in the thighs, followed by other deformities. Radiography and other clinical signs excluded a diagnosis of rickets. There were signs, however, of supra-renal insufficiency, such as hypotension, cutaneous pigmentation, and Sergent's "white line." The symptoms were improved under prolonged adrenalin treatment.

Congenital Stenosis of the Pylorus from Muscular Hypertrophy.—M. Marfan reported the case of a boy, aged 23 days, brought to the hospital for vomiting and constipation. There was nuchal rigidity, slight opisthotonos and general rigidity. No convulsions; fontanelles normal; no undigested milk in the stools; no visible peristalsis, or pyloric tumour. Lumbar puncture negative. The child died five days after admission, the vomiting and constipation having been relieved by suitable feeding. The autopsy showed the stomach dilated and a pyloric tumour, 2 cm. long, of almost cartilaginous hardness. A probe was passed through with difficulty. Microscopically no tumour was found, but the muscular coat was extremely thickened, especially the circular fibres. The speaker alluded to the rarity of the condition in France as compared with England and other northern countries.

Aortic Insufficiency in a Boy, aged 14 years.—M. Meslay reported the case of a boy admitted into hospital for typhoid fever. He presented all the signs of aortic insufficiency without any functional disturbance. There was no history of either syphilis, malaria or rheumatism.

Complete Transposition of Viscera.—MM. Leroux and Labbé showed two brothers, aged 13 and 7 years, with this condition.

Experiments as to the Influence of Heat on Puppies.—MM. Schreiber and Dorlencourt conducted two series of experiments. In the first the temperature was raised gradually to 104° F.; both suckling and artificially fed puppies were used. In the second the subjects were placed directly in a temperature of 112° F. They found that heat by its direct, exclusive action was capable of producing disturbances in young subjects, and its baneful influence was more marked in proportion to its height. Suckled animals suffered equally with those artificially fed. Humidity of the air seemed to diminish the resistance of the subject. The speakers were able to reproduce a heat-stroke rapidly fatal. In dogs submitted to a temperature above 86° F., fever and restlessness was noticed with dyspnœa and wasting. In the majority of cases digestive disturbances were absent. A prolonged temperature above 86° F. caused arrest of growth; a temperature of 104° F. was rapidly fatal. In artificially fed puppies vomiting and diarrhœa occurred. Treatment by cold baths had an immediately favourable effect.

Some Peculiarities of Erysipelas in Infants.—MM. Lesné and Français had noticed in infants attacked with erysipelas a syndrome characterised by vomiting, green diarrhœa with retracted abdomen, erythema, hypothermia and asthenia leading to algid collapse. The only lesion found at the autopsy was hæmorrhage in both suprarenals. This syndrome appeared to exist in other toxic infections at an early age and justified an appropriate opotherapy.

MM. Merigot and Meslay reported a case of cerebral rheumatism with choreic manifestations in a girl, aged 14 years.

M. René Porak gave notes of a case of severe diphtheritic paralysis cured by serotherapy.

M. d'Œlsnitz, of Nice, read a paper on "Sterno-vertebral Transonance in Infants and its Value in the Diagnosis of Tracheo-bronchial Adenopathy."

Vincent Dickinson.

Abstracts from Current Literature.

Medicine.

The value of urinary examination in infants (*'New York State Journ. of Med.,'* 1912, xii, *p.* 76).—**F. V. Bogert** thinks that the most satisfactory method of obtaining a specimen of urine from a baby boy is as follows: A heavy test-tube or small wide-mouthed bottle should be applied over the penis and held in position by an adhesive strap button-holed to admit the neck of the bottle or the shoulder of the test-tube; "the upper end of the strap adheres to the skin over the pubis and the lower end is split and attached to either buttock." In girls the same method may be used or a cup placed over the vulva and held in place by a diaper. The author considers that examination of the urine in children is not undertaken sufficiently often, and thereby much valuable information is withheld and many wrong diagnoses made.

F. R. B. Atkinson.

Toxicity of urine in measles and other infectious diseases (*'Deut. med. Woch.,'* 1912, xxxviii, *p.* 1733).—**H. Aronson** and **P. Sommerfeld** found that the urine in measles contains a thermostabile dialysable toxin which kills guinea-pigs or rabbits on intra-venous injection, or at least makes them very ill. The injection of 2 c.c. of urine is usually enough to kill the animals with symptoms resembling acute anaphylaxis. The toxicity of the urine bears no relation to the severity of the disease, the date of appearance of the eruption or the diazo-reaction. The duration of the excretion of the toxin varies. Urine from other infectious diseases, *e.g.* typhoid, tuberculosis, diphtheria, whooping-cough and scarlet fever contains no toxin. On the other hand the urine in serum rashes and some doubtful eruptions (? fourth disease) had the same toxicity as in measles.

J. D. Rolleston.

The excretion of diphtheria bacilli in the urine (*'Deut. med. Woch.,'* 1912, xxxviii, *p.* 1580).—**H. Conradi** and **Bierast** examined the urine of 155 diphtheria patients and found diphtheria bacilli in 54; 32 were from females, 22 from males—36 from children, and 18 from adults; 31 were in the first week of disease, 10 in the second, 5 in the third, and 2 in the fourth. In only a few cases were bacilli present late in convalescence, but in cases which had completely recovered clinically they were found in the ninth week. They were present both in clear and in turbid, in albuminous and non-albuminous, urines. In every case they were very scanty, only a few being found in the sediment of centrifugalised specimens. Their presence was best shown when they were planted out on Loeffler plates. The dissemination of diphtheria by the urine is probably a rare event, but in some cases milk may be so contaminated and give rise to epidemics. The presence of diphtheria bacilli in the urine may also explain the occurrence of cutaneous diphtheria, which has a well-known predilection from the skin of the genito-crural and anal regions. These findings are of theoretical interest in that they show diphtheria to be not merely a local disease, but a general infection with temporary bacteriæmia.

J. D. Rolleston.

Acute nephritis after impetiginous eczema (*'Monatsschr. f. Kinderheilk.,'* 1912, x, *p.* 569).—**R. Halberstadt** describes the case of a girl, aged 10 years, who suffered from hæmorrhagic nephritis after an impetiginous eczema. The nephritis was ushered in with an attack of uræmia. The kidney affection was cured before the eczema had completely vanished.

F. R. B. Atkinson.

Case of acute nephritis with aphasia and imbecility (*'Austral. Med. Journ.,'* 1912, xxxv. *p.* 385).—**W. F. Brownell** describes a case of a boy, aged 9 years, suffering from nephritis, the ætiology of which could not be discovered, complicated on the fourteenth day with convulsions and coma, probably due to hæmorrhage or œdema, or both, of the brain, followed by aphasia and imbecility. Gradual improvement occurred until the mental faculties became normal.

F. R. B. Atkinson.

Hæmorrhagic nephritis in congenital syphilis (*'Deut. med. Woch.,'* 1912, xxxviii, *p.* 759).—**R. Hahn** records three cases of severe hæmorrhagic nephritis in children aged from 7 days to 3 months in which the clinical diagnosis was confirmed post mortem. In all three cases

œdema was present, which in two affected the legs, and in one the scrotum and abdominal wall as well. In one case there was transient anuria, but uræmia was not observed. In two cases enlargement of the kidneys was detected during life—a finding characteristic of syphilitic nephritis in the adult (Hirsch). J. D. Rolleston.

Paroxysmal hæmoglobinuria in children (*'Thèses de Paris,'* 1911-12, *No.* 420).—**M. Rault.**—This condition is uncommon in children, but not remarkably rare, as Comby was able to collect ninety-four such cases in 1904. Hereditary syphilis is the commonest predisposing cause. The symptoms are the same as in the adult, but larval forms, which may be very difficult to distinguish from Raynaud's disease, are relatively more frequent. Rault distinguishes hæmoglobinuria without hæmoglobinæmia of renal or muscular origin from hæmoglobinuria with hæmoglobinæmia due to intra-vascular destruction of the red cells. Paroxysmal hæmoglobinuria is an obstructive affection and shows no tendency to a spontaneous cure. The immediate prognosis is favourable, but the remote prognosis should be guarded owing to the possibility of renal changes, and especially to the debilitating effect of the disease. Treatment of the attack should be rest in bed, and in the intervals specific treatment should be employed. If that fails, antisensibilised serum as recommended by Widal and Rostaine should be given.
J. D. Rolleston.

Polycystic degeneration of the kidneys, especially in children (*'Arch. f. Kinderheilk.,'* 1912, lviii, *p.* 85).—**W. P. Shukowsky** and **W. Ssinjoff** describe the macroscopic and microscopic appearances of cystic degeneration of both kidneys in a case of a child born at the eighth month, in whom, in addition, atresia of both ends of both ureters was found. They think that the condition in their case is explained on the retention and malformation theories, both of which pathological conditions acted together to produce the appearances found in the kidneys. F. R. B. Atkinson.

Echinococcus of the kidney in a child, aged 11 years (*'Gaz. Hebd. des Sci. Méd. de Bordeaux,'* 1912, xxxiii, *p.* 231).—**E. Loumeau** relates the case of a little boy of healthy family and personal history, who was suddenly attacked with severe pain in the left flank; this lasted for a week, and was so severe as to necessitate injection of morphia. During this time the urine was normal, but when the pain ceased he began to evacuate large numbers of hydatid cysts with more or less pain proportionate to the size of the cysts. The kidney, on removal, was found to be riddled with cysts. The boy made a perfect recovery. Apart from the extreme rarity of hydatid of the kidney at this age, it was strange that a kidney so enlarged was not palpable; the writer attributes this to its being absolutely fixed in the loin. The blood showed 92 per cent. hæmoglobin, 4,836,000 red cells, 14,800 white cells, 25 per cent. eosinophiles, and 1·50 per cent. mast cells. The excised kidney weighed 220 grm.; besides the numerous hydatid cysts its substance was crowded with eosinophiles. J. Porter Parkinson.

Diabetes mellitus in a child under one year (*'Arch. of Pediat.,'* 1911, xxviii, *p.* 905, and 1912, xxix, *p.* 466).—**P. J. Eaton** and **E. B. Woods** report a case in a breast-fed male infant in whom the disease began at seven months. Urine: specific gravity, 1016–1035, acetone and diacetic acid present. For a time there were thirst and increased diuresis, but these

symptoms soon disappeared. In May, 1912, the child was 24 months old. It was still having an acidosis and eliminating glucose though on a carbohydrate-free diet. At times it had coma, which was relieved by sodium bicarbonate. It had gained in weight and was thriving.

J. D. Rolleston.

Diabetes mellitus following whooping-cough (*'Münch. med. Woch.,'* 1912, lix, *p.* 1317).—**W. Starck.**—A girl, aged 6 years, about two months after the onset of severe whooping-cough developed excessive thirst, lost flesh, and showed disturbance of the general condition. Urine: 850 c.c. in twenty-four hours. Specific gravity 1039. Sugar 6·9 per cent. Under appropriate diet the sugar disappeared from the urine in eight days, but the child continued to show intolerance for carbohydrates, a slight increase of them in the diet being followed by glycosuria. When seen eighteen months after the onset of the diabetic symptoms the patient was feeling well and attending school regularly. Since the whooping-cough she had had measles and several attacks of sore throat without bad after-effects. Weekly examination of the urine occasionally showed traces of sugar.

J. D. Rolleston.

Diabetes insipidus (*'Osp. d. Bamb. d. Milan.,'* 1912, i, *p.* 45).—**G. B. Grassi.**—A girl, aged 7 years, whose family and personal history was negative, was admitted to hospital for rapid and progressive loss of flesh associated with polyuria and polydipsia of five months' duration. The quantity of fluid ingested and of urine excreted was at first between two and three litres in the twenty-four hours, but in spite of treatment, increased to four, six, ten, and finally fifteen litres in the twenty-four hours. Specific gravity, 1001–1005. No albumin, no sugar. After four months' stay in hospital improvement occurred, and at the end of the fifth month the polyuria and polydipsia disappeared. J. D. Rolleston.

A case of hydrocephalus with partial anencephaly (*'Paris Méd.,'* 1910–11, i, *p.* 555).—**René Cruchet** describes the above case and also the post-mortem appearances. The latter showed absence of the parietal and temporo-sphenoidal lobe of both hemispheres, and extreme atrophy of the left frontal lobe. The fissure of Sylvius was absent on both sides. The cavity of the ventricles was markedly distended. The corpus callosum was totally atrophied. The child lived to the age of seventeen months.

F. R. B. Atkinson.

An avoidable accident during lumbar puncture (*'Journ. Amer. Med. Assoc.,'* 1911, lvii, *p.* 1287).—**Lorenz** experienced the misfortune of the needle breaking beneath the skin while performing lumbar puncture owing to the patient suddenly extending his back. To obviate such an accident occurring again he now employs a contrivance consisting of a light padded stick placed beneath the patient's knees and attached by means of light straps to canvas bands coming over the shoulders and beneath the arm-pits. By drawing up the knees extreme flexion of the spine, which is necessary for the puncture, is obtained, and at the same time sudden extension of the back on the part of the patient is rendered impossible. In the case referred to the broken end of the needle was successfully extracted by means of a skiagraph. T. R. Whipham.

Myositis ossificans progressiva (*'Journ. Amer. Med. Assoc.,'* 1911. LVII, *p.* 873).—**Elliott** reports the case of a girl, aged 17 years, with a family history free from syphilis, tubercle and developmental anomalies. At the end of the first year it was noticed that the thumbs and great toes were deformed. Shortly afterwards nodes appeared on the head and disappeared spontaneously; they were tender, but never suppurated. During the next three years similar nodosities appeared on the back and shoulders, and at the age of five there was torticollis for about six months. Subsequently other swellings interfered with the movements of the limbs and about this time signs of a valvular heart lesion were present, although there had been no previous rheumatic or other acute infection. In January, 1907, the patient had typhoid fever, and in July the jaws were so stiff that she was unable to eat solid food, the submaxillary region being filled with a hard bony deposit. Next swellings were observed along both sides of the thorax —hard and circumscribed and apparently not connected with the ribs. These gradually disappeared, and in October the arms became stiff, with partial fibrous ankylosis of the right elbow-joint followed by stiffness in the left shoulder. There was little pain, but the skin over the affected areas had at times been suffused and slightly œdematous. During the progress of the disease there had been periods of arrest and the areas of involvement had disappeared. Repeated involvement of the same muscular area had occurred resulting in final persistent hardness. There had been slight pyrexia at times and frequent epistaxis. The patient was small in stature and the dorsal curve of the spine was increased. Maxillary movement was restricted to about one inch owing to bony induration in the submaxillary tissues. The muscles of the neck presented more or less firm induration. The upper ends of both sternomastoids were of a bony consistency, while the clavicular insertions were firm but not bony. A hard node was felt on the left scapular spine and exostoses were found on the eighth and eleventh right and ninth left ribs and also on the crest of the left ilium. The spine was rigid owing to a broad bony mass on either side in the lower dorsal and lumbar regions. Induration was present in the abdominal muscles in the right inguinal region. The pectoral muscles were hard and contracted, preventing abduction of the arms. The biceps of both arms were indurated and there was no mobility of the shoulder-joints. The right elbow was fixed from muscular changes and the right ulna was 1 in. shorter than the radius, to which it was attached by a bridge of bone. The terminal phalangeal joints of both thumbs were ankylosed. The legs were less affected than the other parts, but there was some restriction of movement in the hips, knees and ankle-joints. Both great toes showed a congenital deformity in the absence of one phalanx. In the heart were signs of aortic stenosis and mitral regurgitation, and the urine contained a minute trace of albumin.

T. R. WHIPHAM.

Myatonia congenita (*'Amer. Journ. Dis. Child.,'* 1911, II, *p.* 340).—**W. T. Councilman** and **C. Hunter Dunn** report a case of this condition with a full record of the autopsy. Their case in most details is similar to those already reported. They give short abstracts of thirty-six previously recorded cases.

REGINALD MILLER.

Oppenheim's myatonia (*'Journ. Am. Med. Assoc.,'* 1912, LVIII, *p.* 745).—**I. M. Snow** describes a case in a boy, aged 2 years and 9 months, much improved by strychnine, faradism, massage and resistive exercises.

The disease is characterised by loss of motor functions and marked flaccidity in large groups of muscles. It is usually noticed soon after birth and has never been observed in adults. No patient completely recovers. The arms improve faster than the legs. Neither age nor sex has any influence on the disease. Some, as Oppenheim, consider the disease is not in the nervous centres, but is simply delayed muscular development; others, as Baudoin, that it is a faulty development or degeneration of peripheral nerves, from infection or auto-intoxication of the thymus. Six autopsies are on record. In one there was degeneration of the anterior horn-cells of the cord. In some the cord was normal. The muscles were imperfectly developed. The prognosis is usually good as far as improvement is concerned, but a complete restoration of muscular strength does not occur. The treatment consists in strychnine, electricity, massage and resistive exercises. Griffith's article (*'Trn. Am. Ped. Soc.,'* 1910, xxii, *p.* 184) should be consulted by those interested in the disease. F. R. B. Atkinson.

Three cases of pseudo-muscular hypertrophy in one family (*'Ind. Med. Gaz.,'* 1911, xlvi, *p.* 127).—**Lieut.-Col. R. H. Castor** describes three cases, all boys in one family, of this disease. The father's great grandfather suffered from the same affection. The other children, seven in number, were healthy. Poorly developed external genital organs were noticed in all cases, a condition not referred to, as far as one knows, in any text-book. F. R. B. Atkinson.

Progressive family amyotrophy (type, Charcot-Marie) (*'La Pediatria,'* 1912, xx, p. 133).—**M. Ponticaccia.**—Father healthy but a drinker, mother prematurely old, both grandparents alcoholic. From five pregnancies four females and two males were born; the latter grew up healthy. All the females at about the third month began to show weakness and progressive wasting, first of the legs, then of the upper limbs; the weakness ended in complete paralysis, and death occurred in the first two, in one by pulmonary embolism at the end of the fourth year, and in the other, suddenly, at the middle of the fourth year. The other two female children, who are twins, aged 18 months at the present time, began to show the same trouble in the limbs at the third month. Motor power is good in the muscles of the head but almost absent in the others; the wasting has been more rapid and more marked in the muscles below the patella. Intelligence normal, reflexes absent, cutaneous sensibility probably intact. Reaction of degeneration doubtful. The author discusses the question as to whether these cases belong to the amyotrophic progressive family type (Charcot-Marie), or to the progressive amyotrophic type (Werdnig-Hoffmann) or to Oppenheim's amyotonia congenita. Vincent Dickinson.

Myasthenia gravis (*'Journ. Amer. Med. Assoc.,'* 1911, i, *p.* 1555).—**Acker** reports the case of a girl, aged 16 years, who had been perfectly healthy until one night when she went to a dance and rode home several miles in the cold air. From that time diplopia and ptosis of the upper lids developed with difficulty in swallowing and chewing. She was unable to control her movements, especially after any kind of exercise, and had difficult respiration and tachycardia. Speech became affected and the neck muscles were weak, causing the patient to rest her head against something. She was unable to cross her knees and became tired after any small amount

of exercise. Gradually the muscles became stiff and all movements became more difficult. The patient died from dyspnœa and cardiac failure nine months after the onset of the symptoms. T. R. WHIPHAM.

Paramyoclonus multiplex epilepticus of Unverricht (*'Austr. Med. Gaz.,'* 1912, xxxi, *p.* 77).—**J. C. Verco** describes a case of this disease in two sisters, aged 15 and 21 years. The condition began at the age of ten years in the former case. The jerks were visible in the face and neck, arms and hands and legs. The tongue was also affected and frequently bitten. All the jerks disappeared during sound sleep. General convulsions never occurred except during sleep. The convulsions resembled epilepsy in that they produced unconsciousness, but in other points the condition differed from the latter disease. No clonic spasms followed the tonic spasm, and the face gave the impression that the patient was about to cry. Two years later the condition remained the same. F. R. B. ATKINSON.

Late rickets with muscular weakness, obesity and retardation of the generative functions (*'Gaz. des hôp.,'* 1912, lxxxv, *p.* 27).—**V. Hutinel** describes the case of a girl, aged 13 years, the offspring of a healthy mother but alcoholic father, born after $8\frac{1}{2}$ months' pregnancy, apparently healthy but very small. The child was breast-fed. At the age of three years the patient suffered for fourteen days from headache and vomiting. At eight and a half the left knee became painful and was treated by plaster immobilisation for genu valgum. The abdomen enlarged, the urine was abundant and thirst was troublesome. At the age of eleven abundant albumen was found in the urine accompanied by general œdema. A year later the patient complained of great fatigue and was unable to stand up. On admission to hospital rickety changes were found in the long bones and their epiphyses; the muscles were small, covered with thick layers of fat, and showed diminished galvanic and faradic excitability. The nails of the fingers and toes were transversely striated and much incurvated. On the head frontal and parietal bosses were noted and the thorax was typically rachitic. The urine was abundant and albuminous, and the impaired secretory power of the kidneys was proved by injection of methylene-blue, urea and salt. Alimentary glycosuria was also produced. The bony deformity, however, was anterior to the renal disorder, and the author therefore denies that the kidneys are the defaulting agents. The bony changes resembled not only rickets but osteomalacia. Other similar cases are quoted associated with diminished menstruation or amenorrhœa and small stature, but without renal disorder. The author considers that this dystrophy resembles that caused by alteration of the glands of internal secretion and particularly the hypophysis, adiposity and decreased genital power being associated with diminished functional powers of the posterior lobe of this organ.

CHRISTOPHER ROLLESTON.

The mental condition in rickets (*'School Hygiene,'* 1912, iii, *p.* 6).—**A. Gilmour** found that among 6470 children (3401 boys and 3069 girls), rickets occurred in 23·16 and 12·05 per cent. respectively; the younger the age the higher the percentage. The children affected were usually the younger members of large families. He also found that there was a higher percentage of children who were mentally dull among those suffering from rickets, and that this dulness existed in the case of children in whom no hereditary taint or evidence of neglect of malnutrition could be found. The

author considers that the brain is more affected in some cases than in others. The impairment is not usually permanent, but improves as the physical condition improves. It is liable, however, to become permanent, even when there is an improvement in the physical condition in children in whom the family history is bad. F. R. B. Atkinson.

Dementia præcox in childhood (*'Arch. de méd. des enf.,'* 1912, xv, *p.* 169).—**P. Haushalter** divides dementia præcox into—(*a*) simple dementia, in which progressive weakness of the mental faculties occurs without any marked explosive symptoms, as delirium or katatonia. (*b*) Katatonic dementia, characterised by conditions of stupor and excitement; in the stuporous state the patient always adopts the same position, although efforts are made by others to change it (*stéréotypie akinétique*); in other cases the patients incessantly reproduce certain automatic movements (*stéréotypie parakinétique*). (*c*) Hebephrenic form, which includes states of depression and excitement, characterised by delirium. The author quotes two cases, one of simple dementia præcox, and one of the *stéréotypie parakinétique* variety of the katatonic form. F. R. B. Atkinson.

Syphilis and amentia (*'Cleveland Med. Journ.,'* 1912, x, *p.* 251).—**W. C. Stoner** and **E. L. Keiser** report on 1050 unselected cases of all grades of mental deficiency in the Ohio Institution for Feeble-minded on whom they employed Wassermann's reaction. The patients' ages ranged from six years to over sixty. The original Wassermann technique was used with an anti-ox amboceptor in the greater part of the observations. Eighty-three cases, or 7·9 per cent., were positive. Only 14·4 per cent. of the positive cases showed clinical signs of inherited syphilis. Although congenital syphilitics lose their antibody content with age, a number of positive cases were found past middle age, including one aged sixty-one years. The percentage of positive results in the various forms of mental defect are as follows: Mongolian, 17·8; microcephalic, 11·0; macrocephalic, 21·3; paralytic, 23·0; deaf, 7·6; blind, 0; epileptic, 2·2 (*cf.* British Journal of Children's Diseases, 1911, viii, *p.* 284, and 1912, ix, *p.* 46). J. D. Rolleston.

Surgery.

Three cases of hare-lip and cleft palate in one family (*'New York Med. Journ.,'* 1912, i, *p.* 176).—**A. T. Hawes.**—A woman gave birth to a girl with hare-lip and cleft palate who died when two weeks old shortly after an operation to remedy the deformity. The mother afterwards gave birth to two normal children, a boy and a girl, and then to twins, with separate placentas, each having a hare-lip and cleft palate. Both died suddenly about the fourteenth day within two hours of each other. There was no evidence of syphilis in the parents. J. D. Rolleston.

The cleft palate controversy (*'Practitioner,'* 1911, lxxxvii, *p.* 317).—**F. W. Goyder** considers the arguments for and against the median operation between one and three years as opposed to the flap operation, and finds that the median operation is to be preferred at this age.

F. R. B. Atkinson.

Hypertrophic pyloric stenosis, successfully operated on by a new method (*'Austral. Med. Journ.,'* 1912, XLI, *p.* 456).—**W. H. Brown** describes this case in a child a month old. The operation consisted in a vertical incision through the upper half of the right rectus, a longitudinal incision through the peritoneum, and then division and dissection away of the thick overgrown muscle of the pyloric sphincter. The peritoneal cut was then stitched up transversely and the abdomen closed with through-and-through stitches.

F. R. B. ATKINSON.

Multiple diverticula of ileum (*'Journ. Amer. Med. Assoc.,'* 1912, LVIII, *p.* 1190).—A girl, aged 11 years, suffering from typhoid fever presented symptoms of appendicitis with threatening perforation. On laparotomy the appendix was found to be gangrenous at its base and firmly adherent to the under surface of the ileum, and to one larger and one small diverticulum of the ileum. A third diverticulum was close to the lip of the appendix, but not adherent to it. The larger diverticulum was filled with a fæcal mass. The appendix was removed, the small diverticulum was pursued into the bowel and the other two were removed, inverted and sutured over as in an enterostomy. Complete recovery took place.

J. D. ROLLESTON.

A case of intussusception in an infant; resection and recovery (*'Med. Press. and Circ.,'* 1912, II, *p.* 8).—**H. F. Woolfenden** describes this case in a child aged 3 months. The intussusception was of the ileo-cæcal type. Six inches of large intestine were removed; no gangrene was present, and the irreducibility seems to have been due to the œdema present.

F. R. B. ATKINSON.

Appendicitis in children (*'Am. Journ. Dis. Child.,'* 1912, IV, *p.* 97).—**R. S. Fowler** considers the symptoms, diagnosis and treatment of this condition, and gives statistics of 183 patients with appendicitis under twelve years of age met with in the German Hospital of Brooklyn from the years 1900–1912. The total number of cases during the same period was 1115; the proportion of children (183) was therefore 16·41 per cent. Three of the patients died in hospital, one patient months later following resection of the intestine. The youngest patient was two years and nine months old, the oldest twelve years. Of the last 100 cases 63 were males, 37 females.

F. R. B. ATKINSON.

Appendicitis in children (*'Med. Press,'* 1912, I, *p.* 664).—**H. A. T. Fairbank** discusses the anatomical peculiarities of the appendix in children, the symptoms and diagnosis, drawing attention to the vagueness of the former. He considers that only two means of producing anæsthesia in these cases should be employed, viz. spinal anæsthesia by stovain (the better), and ether by ordinary inhalation anæsthesia. He states that chloroform is dangerous.

F. R. B. ATKINSON.

Appendicitis in childhood (*'Arch. of Pediat.,'* 1912, XXIX, *p.* 366). – **E. Marvell**.—Appendicitis is a more common disease of childhood than is generally understood. Its frequency, baneful consequences, and comparative certainty of correction when early recognised requires closer examination than is usually accorded it to determine its existence. The only sure eradication is early removal of the appendix.

F. R. B. ATKINSON.

Appendicitis in children (*'Austral. Med. Gaz.,'* 1912, xxxi, *p.* 519).—**R. B. Wade** considers that the very mild attacks are often overlooked, and the disease is more common in children than is generally supposed, but is not so common as in adults; its frequency grows with the increasing years. Concealed peritonitis cases are common in children. If a mass is felt in a young child under seven, in nearly every case it will contain pus; all definite attacks should be operated upon at once, and in mild cases immediate or late operation is advisable. F. R. B. Atkinson.

Oxyuris appendicitis (*'Med. Record,'* 1911, i, *p.* 1162).—**R. L. Cecil** and **K. Bulkley.**—The paper is based on the study of 112 cases of appendicitis in children, with a control series of thirty-five autopsy and other appendices. Eight per cent. of the autopsy appendices showed oxyuris, and nearly 17 per cent. of cases of appendicitis in children contained either oxyuris or trichocephalus. The typical oxyuris appendix is swollen and rigid, but the serosa is smooth, pale and glistening. The lumen is filled with bloody mucus, and minute ecchymoses or hæmorrhagic ulcers may be seen on the mucosa. Sometimes the oxyuris is firmly attached to the mucous membrane, or may be seen burrowing beneath it. Occasionally it is completely enclosed in a fibrous capsule. The writers' statistics show that oxyuris or trichocephalus were responsible in New York for one out of five or six cases of appendicitis in children between two and fifteen years of age. J. D. Rolleston.

A critical study of oxyuris and trichocephalus appendicitis (*'Amer. Journ. Med. Sci.,'* 1912, i, *p.* 793).—**R. L. Cecil** and **K. Bulkley** analyse seventy-two cases of this condition. A little over 50 per cent. occurred between the ages of six and fifteen. The youngest case was aged 21 months and the oldest 54 years. It is twice as common in the female. Eighty-four per cent. showed the oxyuris. The number of the parasites varied from 1 to 150, the average being about 11. In 86 per cent. the appendicitis was of a catarrhal or non-suppurative type, in ten of the gangrenous form. *Symptoms:* The pain is frequently described as a gnawing, scratching, itching sensation in the right lower quadrant of the abdomen, and is frequently out of all proportion to the objective symptoms. True rigidity is often absent. The general constitutional reaction is slight. The authors consider these signs important in the differential diagnosis between this form of the disease and that arising from other causes. Their conclusions are: (1) There is a definite and characteristic form of appendicitis caused by these worms. (2) It is comparatively common, constituting 15 per cent. of the cases considered by the authors. (3) The typical pathological changes consist of a catarrhal type of inflammation, and punctures and ulceration of the mucosa of the appendix by the parasite. (4) In some cases the parasites or their ova may be demonstrated in the fæces. The clinical picture is dominated by the exaggeration of subjective and lack of objective signs. (5) The ideal treatment is appendectomy. F. R. B. Atkinson.

Pneumococcal peritonitis in children (*'Practitioner,'* 1912, lxxxviii, *p.* 557).—**S. Barling** has met with 3 cases of pneumococcal peritonitis in children under the age of 12 out of 27 laparotomies, and founds his remarks on 28 cases met with in the last four years at various hospitals in Birmingham, and 206 cases from the literature. Of the 234 cases 62, or 27 per cent., were males, and 172, or 73 per cent., females. The organism may reach the peritoneal cavity

through the vagina, Fallopian tubes, intestine, vascular system, or lymphatics of the diaphragm. *Pathological anatomy:* The bowel is inflamed and distended, and the peritoneal cavity contains sero-fibrinous purulent exudate. The liver, spleen and kidney may show signs of fatty changes, or cloudy swelling. *The clinical types* are of three kinds: (*a*) Very acute cases, with marked abdominal features from the first and no lesion in the lungs. (*b*) Pneumonia develops almost simultaneously with the peritonitis. (*c*) Chronic cases. Pneumonia has existed for some weeks and is followed by signs of fluid in the abdomen. *Diagnosis:* Pain, diarrhœa, vomiting with rigidity of the abdominal walls are suspicious signs, especially if associated with initial diarrhœa, and if pneumonia is present, as is frequently the case, the probability is that the case is one of pneumococcal peritonitis. *Prognosis:* Of the author's collection of cases 79 per cent. died. The best prognosis exists in the cases in which only the peritoneum is attacked; four out of seven cases of this kind recovered, in all of which operation was performed. *Treatment:* Laparotomy and drainage give the best chance of success. Vaccines have not been very successful. F. R. B. Atkinson.

Intestinal stasis in children and its surgical treatment (*'Practitioner,'* 1912, lxxxviii, *p.* 570).—**L. E. B. Ward** sums up his conclusions as follows: Intestinal stasis, exactly comparable to that found in the adult, may occur in the child. When associated with certain diseases, as tubercular joint disease, rheumatoid arthritis, and ulcerative colitis, these latter may be much improved or even cured by ileo-colostomy, which also cures the stasis. The cure of the latter is also followed by relief of the child's symptoms, both local and general. F. R. B. Atkinson.

Megalocolon congenitum (*'Med. Record,'* 1911, ii, *p.* 1164).—**Herman B. Sheffield** points out that the classical form of this disease is that which is manifested immediately after birth by constipation, meteorism and retention in the colon of comparatively large quantities of fluid injected for the purpose of emptying the bowel. Since Hirschsprung's original description in 1880, there was a growing tendency to include also cases developing several weeks or months later, if they were traceable to some congenital intestinal anomaly. He records a case belonging to the latter category. Constipation and meteorism began at six months and increased. After administering an active cathartic, the stools would be found to be mixed with large quantities of mucus, in the form of irregular pieces of membrane, and sometimes also with blood. Enormous distension of the abdomen developed, and the child steadily became worse. Ultimately the abdomen was opened and an abrupt contraction found in the sigmoid flexure, below a greatly distended descending colon. No remedial operation was attempted and the child died next day. Frederick Langmead.

A case of Hirschsprung's disease (*'Rev. d'hyg. et de méd. inf.,'* 1911, xv, *p.* 410).—**A. Fritz** describes a case of this disease in a boy, aged 8 years, who died after operation for extirpation of the dilated colon. There are two groups of cases of this disease; the first shows itself in the first days of life, the second after the first year or later. The symptom first noticed is obstinate constipation, followed by great enlargement of the abdomen. Bing calls the first group acute and the second chronic, in which latter ulceration and perforation of the intestine frequently occur. The author's case belonged to the second class and showed these changes on autopsy.

Ætiology: Hirschsprung looks on the disease as an anomaly of development, evoking dilatation and hypertrophy of the colon, and secondarily constipation. Marfan regards the hypertrophy and dilatation as secondary, and as a result of the twisting of the sigmoid colon constipation arises. Bing thinks the disease is due to faulty innervation, which renders the normally developed muscular tissue lax and hence the wall dilates. The disease is more frequent in boys than girls. Of Hirschsprung's seventeen cases, fifteen were boys. Treatment consists in lavage of the bowel, purgatives, massage and faradisation of the abdominal wall. If these are ineffectual, removal of the colon has been undertaken, but the number of successes is small. F. R. B. Atkinson.

Congenital ano-rectal deformities (*'Siglo Med.,'* 1912, lix, *pp.* 2, 51, 82).—**Arquellada** discusses the classification, ætiology, diagnosis, pathology and treatment of these deformities. He considers the prognosis favourable if there is early surgical intervention in cases of stricture and imperforate anus (without other congenital deformities). In absence of the rectum where an artificial opening in the iliac region must be made the prognosis is more serious. The outlook depends upon the organ or place of the opening. As a rule it is more serious when the internal fistula opens into the urinary tract than when it opens into the genital organs. The operations are described and illustrated in the final article. M. D. Eder.

Atresia ani et recti (*'Med. Record,'* 1911, ii, *p.* 1165).—**Herman B. Sheffield** records a case of a first child, born at full term. The head was soft and deformed, the ears turned inwards and hanging loosely. The forearms were contracted, the legs short and sharply curved inward, and the feet in the position of talipes varus. The scrotum and its contents were absent, and the penis was represented by a flat imperforate piece of skin. There was no anus. The intestines terminated at the left iliac fossa in a blind pouch filled with meconium. The kidneys and bladder were rudimentary. A second child of the same mother shows slight deformities of the ears and fingers. Frederick Langmead.

Cæcum and appendix in left inguinal hernia (*'Indian Med. Gaz.,'* 1912, xlvii, *p.* 224).—**F. F. Strother Smith** records a case in a male child, aged $1\frac{1}{4}$ years. On opening the sac he found in it the appendix lying in front of the cæcum. The contents of the sac were reduced, the sac pulled down, ligatured at its neck and pushed well back into the abdomen. The canal was closed in the ordinary way. J. D. Rolleston.

Epigastric hernia in children (*'Arch. f. Kinderheilk.,'* 1912, lviii, *p.* 8).—**A. Brandeinberg** finds that paroxysmal attacks of pain in the lower part of the abdomen directly after meals, especially breakfast, are characteristic of this condition. He recommends plaster with an india-rubber pad, and if this does not suffice, operation by paraffin injections or by radical cure. F. R. B. Atkinson.

Torsion of uterine annexa in the hernias of nurslings (*'New York Med. Journ.,'* 1912, i, *p.* 693).—**A. V. Moschcowitz** divides the forty cases described in the literature into—(1) those in which a torsion of the pedicle has been noted—twenty-six cases, including one personal; (2) those in which no torsion was present—four cases; (3) those in which a torsion of the

pedicle has not been noted—ten cases, one personal. Three of the forty cases were older than one year. Nineteen occurred on the left side and twenty on the right; in one the side was not stated.

F. R. B. Atkinson.

Thoracoplasty for chronic empyema (*'Practitioner,'* 1912, lxxxviii, *p.* 751).—**J. R. Kerr** describes two cases in girls, aged 17 and 7 years respectively, in both of whom removal of several ribs was undertaken for an unhealed sinus extending into a cavity. The first case ended fatally on the tenth day from broncho-pneumonia, but the second made a good recovery.

F. R. B. Atkinson.

Rupture of the kidney in children (*'Am. Journ. Med. Sci.,'* 1912, cxliii, *p.* 649).—**C. L. Gibson** finds reports of only twenty-two cases of this condition, and describes four others in a girl aged 10 years, a boy about 10 years, a boy aged 12 years, and a girl aged 8 years, all of which recovered after nephrectomy. He divides the cases as far as treatment is concerned into (1) those suitable for expectant treatment—(*a*) milder forms of the injury; (*b*) cases in which it is thought both kidneys are injured; (*c*) cases in which such grave injuries had occurred in other parts of the body that operation would be futile. (2) Cases demanding operation: (*a*) All cases showing progressive hæmorrhage; (*b*) long-continued hæmaturia; (*c*) anuria lasting longer than thirty-six or at the most forty-eight hours; (*d*) cases in which there is evidence of intra- or peri-renal suppuration or peritoneal infection.

F. R. B. Atkinson.

Death from renal adeno-sarcoma (*'Med. Record.,'* 1912, i, *p.* 844).—**V. C. Pedersen** concludes the history of this case published in the *Med. Record*, 1911, ii, *p.* 417. For a short time after the operation the patient did well; at the end of three months, however, ascites and signs of venous obstruction of the lower extremities occurred, and emaciation rapidly resulted. A radiograph showed relapse of the tumour on the left side and death occurred six months after the operation. Microscopic examination revealed two kinds of tissue: a spindle-celled sarcoma of the small-celled variety with numerous cysts and a large amount of spindle-celled stroma in which were found glandular tubules; the connective tissue in other places was grouped in smaller and larger alveoli or were solid nests around the glandular elements. This is the mixed form of tumour described by Wilms, and not uncommon in the kidney.

F. R. B. Atkinson.

Vesical calculus in a boy, aged 5 years (*'Amer. Journ. Obst.,'* 1912, lxv, *p.* 358).—**A. D. Smith** describes the above case, remarkable for the size of the stone and age of the patient. The stone measured $1\frac{3}{8}$ in. by $1\frac{1}{8}$ in. by $\frac{3}{4}$ in. and weighed $\frac{3}{4}$ oz. It was successfully removed by operation.

F. R. B. Atkinson.

Congenital obstruction of posterior urethra (*'Am. Journ. Dis. Child.,'* 1912, iv, *p.* 137).—**J. H. Mason Knox** and **T. P. Sprunt** record a case in a boy, aged 5 years, who had had difficulty in controlling micturition since infancy. Urine was passed every half hour day and night without pain. Five weeks before death he was taken suddenly ill with cough, abdominal pain, vomiting, and constipation. There was no fever. Death was preceded by symptoms of uræmia. Post mortem, an obstruction was

found in the prostatic portion of the urethra, which was converted into a blind pouch by fusion of the anterior and posterior walls, due apparently to over-development of folds normally present immediately distal to the verumontanum. A triangular opening whose sides measured 3 mm. in the floor of the pouch was the only communication with the anterior urethra. The bladder was markedly hypertrophied and dilated, the ureters were very tortuous and greatly enlarged, and the kidneys showed typical hydronephrosis. No other anomaly was found except an adenoma of the right adrenal. J. D. Rolleston.

Toxic symptoms following the use of tincture of iodine as a skin disinfectant in children (*'Gaz. hebd. d. Sci. méd. de Bordeaux,'* 1912, xxxiii, *p.* 235).—**Codet-Boisse** records two cases, one in a girl, aged 7 years, operated on for inguinal hernia, the other in a boy, aged 15 years, operated on for appendicitis. In both cases the skin of the abdomen and operation wounds were painted with the tincture of iodine of the French codex. The same symptoms occurred in both cases within twenty-four hours, viz. rise of temperature, a generalised erythema without sore throat, followed by desquamation and suppuration of the wounds. The writer excludes the possibility of scarlatina or infection of the wounds, and attributes the symptoms to a special idiosyncrasy for iodine.
J. D. Rolleston.

Pathology.

The ætiology of scarlet fever (*'Presse méd.,'* 1912, xx, *p.* 701).—**C. Levaditi** reviews the recent work by Cantacuzène (*v.* British Journal of Children's Diseases, 1911, viii, *p.* 230), Bernhardt and others, and describes the experiments made by himself with Landsteiner and Prasek in Vienna and at the Pasteur Institute in Paris on five chimpanzees and one orang-outang. They found that swabbing the throat with deposit from the tonsils in the acute stage of scarlet fever produced in each case an angina similar to that of scarlatina. Inflammation of the tonsils, pillars and pharynx appeared after an incubation of two to three days. The angina was usually accompanied by fever and often by diarrhœa, and subsided in five or six days. Two chimpanzees, who had had a subcutaneous injection of blood and a glandular emulsion from a scarlet fever patient, in addition to the angina presented an intense general infection which proved fatal. In one chimpanzee the infection was accompanied by a generalised eruption resembling that of scarlet fever, in another the eruption was localised to the inoculation site. Typical scarlatinal desquamation was observed in the orang-outang only, following a mild angina and a discrete erythema of the thorax and abdomen. These experiments show that the anthropoid apes are more susceptible to the scarlatinal virus than the lower apes. The virus, the nature of which is still unknown, appears to exist in the tonsillar and lingual deposit, the blood and lymph-glands, and perhaps the pericardial fluid. J. D Rolleston.

Leucocyte inclusion bodies in scarlet fever (*'Centralbl. f. Bakt.,'* 1911, *Orig.* lxi, *p.* 63).—**Döhle,** in the examination of blood-films from about thirty scarlet fever patients, found almost invariably some bodies enclosed in the polymorphonuclear leucocytes, and situated in the unstained

and faintly stained portions of the protoplasm. The number of leucocytes showing these bodies varied, as did also the number of bodies in each cell. As a rule they were only one or two, but sometimes there might be as many as six. In shape they were round or oval or bacillus-like, pointed at both ends, or curved or pyriform. In a few cases they were extra-cellular. The inclusion bodies were most likely to be found in the blood shortly after the appearance of the eruption. Döhle examined the blood in numerous other diseases, but in only three cases, one of pneumonia and two of cancer, could he find similar bodies.

J. D. Rolleston.

Inclusion bodies in the blood in scarlet fever (*'Arch. of Ped.,'* 1912, xxix, *p.* 350).—**M. Nicoll, jun.,** and **A. W. Williams** examined blood-smears from fifty-one cases of scarlet fever, and found inclusion bodies in forty-five. The negative cases had been ill eight days or more, while the great majority of the positive cases had been ill less than a week, and most of them for less than four days. These bodies were found chiefly in the polymorphonuclears, and varied in size from a small coccus to irregular masses one fifth the size of a red corpuscle. Bacillary forms were also seen. Of 25 control cases, including 12 of measles, 3 of diphtheria, 3 of rubella, and 3 normal bloods, only 3 showed these bodies, viz. a case of pneumonia in a luetic woman, a case of erysipelas in an infant, and a complicated case of measles. The writers conclude that examination of the blood in the first week will serve to differentiate scarlet fever from measles, German measles, and probably toxic eruptions.

J. D. Rolleston.

Inclusion bodies in scarlet-fever blood as a means of differential diagnosis (*'Arch. of Ped.,'* 1912, xxix, *p.* 416).—**M. Nicoll, jun.,** examined the blood of 115 scarlet fever cases, including all types of the disease. Most of the patients had been ill from one to seven days. The inclusion bodies were present in all but sixteen, most of whom had been ill from seven to twenty-eight days. Among about 80 controls examined, 8 cases of erysipelas, 7 of sepsis, mostly puerperal, 4 of typhus, and 1 of empyema were positive, and 23 of measles, 17 of German measles, 12 of serum rashes of various types, 3 of diphtheria, and 3 of follicular tonsillitis were negative. Manson's stain (borax-methyl blue) showed the inclusion bodies best.

J. D. Rolleston.

Diagnostic value of leucocyte inclusion bodies in scarlet fever (*'Berl. klin. Woch.,'* 1912, xlix, *p.* 499).—**M. Kretschmer** examined blood-films of about thirty cases in the Strasburg Children's Clinique and invariably found one to six inclusion bodies present in the great majority of the polymorphonuclears. In one case they were seen before the appearance of the eruption. They were found up to the fourth day and very gradually disappeared, but in some cases they were still present on the fourteenth and fifteenth days, and in one on the twenty-eighth day. Of about 70 control cases examined, including 20 normal cases, 8 of measles, 6 of diphtheria, 9 of tuberculosis, 6 of carcinoma and 6 of syphilis, only 4 showed inclusion bodies, viz. 1 of pneumonia with cervical abscess, 2 of diphtheria with streptococcal empyema, and 1 of tuberculosis. Guinea-pigs, rabbits, white mice and apes, whether inoculated or not from scarlatinal patients, did not show the bodies.

J. D. Rolleston.

The diagnostic significance of leucocyte inclusions in scarlet fever (*'Berl. klin. Woch.,'* 1912, XLIX, *p.* 1232).—**I. Ahmed** found inclusion bodies present in scarlet fever patients examined between the third and tenth days of disease and absent in eighteenth and twenty-first day cases. He found them present also in other febrile diseases, viz. pulmonary tuberculosis, typhoid fever, measles, German measles and erysipelas. Ahmed regards them as fragments of the nucleus and denies them any diagnostic importance. J. D. ROLLESTON.

Leucocytic inclusion bodies, with special reference to scarlet fever (*'Am. Journ. Dis. Child.,'* 1912, IV, *p.* 1).—**J. A. Kolmer** examined blood smears in 216 scarlet fever patients, and found the inclusion bodies present in 94 per cent. during the first three days of the disease. Subsequently they diminished, and were generally absent by the ninth day. Of fifty cases of diphtheria the bodies were found in 42 per cent. during the first three days of the disease. Subsequently they were but seldom found. The inclusion bodies were also found in seven out of eleven cases of erysipelas, in a case of streptococcus empyema, and one of puerperal sepsis. A relation between the bodies and streptococcus infections was thus strongly indicated. The bodies were not found in measles, rubella, or gastro-intestinal rashes. Of forty-four cases of serum disease the bodies were only found in some of those presenting a scarlatiniform rash. Kolmer concludes that the absence of these bodies in serum disease excludes scarlet fever with a fair degree of certainty, but that their presence may be due, not to scarlet fever, but to the primary attack of diphtheria.
J. D. ROLLESTON.

Recent advances in our knowledge of measles (*'Am. Journ. Dis. Child.,'* 1912, IV, *p.* 20).—**J. F. Anderson** and **J. Goldberger** refer to their recent experimental work on monkeys (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1912, IX, *p.* 35), which they successfully inoculated with measles. Their further experiments showed that the nasal and buccal secretions in uncomplicated cases of measles may be at times, but not always, infective for the monkey, and that the positive results are obtained only twenty-four or forty-eight hours after the appearance of the eruption. Experiments to determine the infectivity of the scales collected from human cases of measles from the fourth to seventh day after the first appearance of the eruption yielded entirely negative results. Many cultures were made with measles blood known to be infective by monkey inoculations, but in no case was any growth obtained that appeared to have any ætiological relation to the disease. J. D. ROLLESTON.

The blood and hæmopoietic organs in heredo-syphilis (*'Thèses de Paris,'* 1911–12, *No.* 454).—**J. Sevestre.**—All heredo-syphilitic infants show some modification of the blood formula. All the different types of anæmia may be met with, varying from simple anæmia to pseudo-leukæmia, infantile anæmia, and even leukæmia. In other cases there is an increase in the number of red cells. In cases where the number of red cells is only slightly diminished there is usually a diminution of hæmoglobin, while in cases where the red cells are much diminished there is generally an increase in the hæmoglobin. This increase in the hæmoglobin is one of the most constant features of the anæmias of heredo-syphilis. In every case are to be found deformities of the cells, dyschromatophilia and anisocytosis. Micro-

cytes, as a rule, are present, more rarely megalocytes. The number of white cells is usually increased, but may be normal, but in either case there is an increase in the number of the mononuclears. Nucleated red cells and myelocytes are practically constant in the blood in heredo-syphilis. Histological lesions are invariably met with in the hæmatopoietic organs. In the spleen and bone-marrow there is an intense myeloid reaction, which is frequently associated with sclerosis in the case of the spleen. The *Spirochæta pallida* may be found in both, but in small numbers only in the bone-marrow. As the result of specific treatment the number of red and white cells and the hæmoglobin return to normal, and the nucleated red cells and myelocytes disappear, but the leucocytic formula characterised by the predominance of mononuclears remains the same. The thesis contains the histories of thirty-eight cases, eighteen of which are original, in infants aged from twelve days to two years. J. D. Rolleston.

The pyrogenetic action of lactose (*'Am. Journ. Obst.,'* 1912, lxv, *p.* 373).—**F. W. Schlutz** records some experiments which were carried out on rabbits. Lactose was given intra-venously (alone, or combined with physiological salt solution or Ringer's solution), subcutaneously, and by the mouth. When administered by the mouth it was also given either alone or in conjunction with physiological saline or Ringer's solution. Intestinal disturbance was then produced in the rabbits by feeding them with β-oxybutyric acid and croton oil. The results warranted the conclusion that—(1) lactose, if given intra-venously, subcutaneously, or orally, possesses no distinct pyrogenetic effect; (2) it does possess a definite though not pronounced influence on the temperature if it is given subcutaneously or orally in a diseased intestinal tract in combination with a medium containing a sodium salt such as physiological saline or Ringer's solution. The results, though definite, were hardly so pronounced as would be expected from the effect produced clinically by the administration of lactose in similar conditions, and were far from explaining the pathogenesis of the fever occurring in alimentary intoxication. Frederick Langmead.

The pathology of subacute and chronic mucous entero-colitis (*'Riv. di clin. Pediat.,'* 1912, x, *p.* 81).—**A. Creazzo.**—Many factors enter into the pathogeny of this affection. Nervous change and psychic deficiency is one of the conditions which predispose to the action of infective germs. These forms of mucous entero-colitis are contagious. Clinically the disease presents no striking difference with respect to the age of the subject. Diarrhœa is always present, and a general condition of intoxication and cachexia which frequently leads to marasmus. Fever is a secondary phenomenon which may be absent. The small and large intestines contain an abundant mucous fluid of a yellowish colour. The mucosa of the first half of the small intestine is usually thickened, œdematous, rarely atrophied, and the glands undergo a process of hypersecretion of mucus. In the second half, especially in the lower third, the mucosa is usually atrophied, the glands being affected as much as the villi; the muscular coat is always atrophied and sometimes the submucous. In the large intestine in some cases there are zones of atrophy, especially in the cæcum and transverse colon; the mucosa is more or less atrophied, frequently the glands; the muscular coat is rarely atrophied. There are tracts in which the coats are thickened and infiltrated—a condition which in some cases amounts almost to a kind of sigmoiditis or proctitis. There are thus hyperplastic and atrophic forms of colitis.

Ulceration is frequent in the large but very rare in the small intestine, while swelling of the lymphatic follicles is general. The stomach and duodenum participate more or less in the process, and there are frequently fatty changes in the liver, slight sclerosis in the pancreas, and changes in the renal epithelium. The spleen is never enlarged.

VINCENT DICKINSON.

Pathology of chorea (*'New York Med. Journ.,'* 1912, II, *p.* 323).—**Francis A. Hulst** regards chorea as divisible into two groups, one due to a definite cerebral lesion or irritant, and the other to irritation elsewhere in the body, giving rise to reflex disturbances in the neuro-muscular mechanism. The first group he attributes to an infectious cause, and thinks that in many of the second group the nervous system has been weakened by some insidious toxæmia.

REGINALD MILLER.

Tuberculous meningitis: a pathologic report of nine cases (*'Journ. Amer. Med. Assoc.,'* 1912, LIX, *p.* 165).—**J. H. W. Rhein.**—Blood-vessel changes were present in all cases. Cortical changes were present in all the cases and marked encephalitis in three. The duration of the disease has little if any bearing on the character of the exudate. The changes in the blood-vessels consisted of thickening of the arterial walls and some veins. Perivascular round-cell infiltration was quite common. Distension of the perivascular spaces was noted in seven of the cases. In three cases there was round-cell infiltration of the superficial layer of the cortex, and in another capillary hæmorrhage was present. No plasma-cells were found in three cases.

F. R. B. ATKINSON.

Reviews.

CLINICAL METHODS: A GUIDE TO THE PRACTICAL STUDY OF MEDICINE. By ROBERT HUTCHISON, M.D., F.R.C.P., and HARRY RAINY, M.D., F.R.C.P.Edin., F.R.S.E. Fifth edition. Revised throughout. London: Cassell & Co., 1912. Price 10s. 6d.

THE last edition of this well-known manual appeared in 1908, since when numerous developments in almost every department of clinical medicine have rendered a new edition imperative. By judicious selection and elimination the authors have succeeded in bringing the work up to date without materially adding to its bulk. Some portions of the book have required little, if any, change. Thus, in the admirable chapter on the clinical examination of children, except for a description of Koplik's spots it has not been necessary to make any addition since the original edition in 1897. Among the new features in the present edition are a description of recent sphygmomanometers and several new urine tests and a clear account of the various sensory impulses and their course in the cord and brain. The additions to the chapter on clinical bacteriology include notes on the examination of the cerebro-spinal fluid, von Pirquet's reaction, typhoid carriers, paratyphoid bacilli, the *Spirochæta pallida* and Wassermann's reaction. No mention,

however, is made of Vincent's organisms, and Pugh's toluidin blue stain for diphtheria bacilli deserves to find a place in the next edition.

Several new diagrams have been added, and the chapter on the examination of the blood contains some excellent new plates illustrating Leishman's stain. J. D. R.

Ueber Sauglingsernährung. Von Dr. Ernst Schloss. Mit 59 Kurven im Text und auf 3 Tafeln. Berlin: Verlag von S. Karger, 1912. Price 6 M.

In this book Dr. Ernst Schloss, of Berlin, has attempted a double task, first to describe the results which he has achieved in feeding infants, both the healthy and those who already suffer from digestive disorders, with a specially modified milk mixture; and, secondly, to place before the reader, in small compass, a historical review of the whole science and art of the artificial feeding of infants. We are not sure that these two objects are truly incompatible. The historical part of the book, at least, is likely to suffer, because each previous advance and discovery is apt either to be hailed with favour as prelude to the new method now advocated by its author, or to be deplored as a retrograde step and a backsliding from the paths of true progress. Thus the author is induced to regard the progress of our knowledge of infant feeding as culminating in the well-known experiments of Ludwig Meyer, which seemed to show that the symptoms of many dyspepsias in infants were dependent upon the abnormal proportions of the saline constituents of the whey, while the other substances in the milk, fats, proteids and carbohydrates, were quite innocuous. The remainder of the book is in great part concerned with the results of the author's modification of the whey, in such manner as to make it resemble the whey of human milk as closely as possible in respect of its saline constituents. The closest approximation to human milk is obtained by a mixture for each litre of milk $\frac{1}{7}$, 20 per cent. cream $\frac{1}{7}$, water $\frac{5}{7}$, to which is added 50 to 70 grm. of malted sugar, 5 grm. nutrose or plasmon, and ·2 grm. KCl. The favourable results of this mixture are shown by numerous charts and diagrams. The book, although perhaps it suffers from the drawbacks which have been mentioned, is one of intense interest, and is written by one who is not only familiar with the huge literature of the subject, but who has had for many years a wide experience of the subjects of which he treats. H. C. C.

Technique Chirurgicale Infantile: Indications Operatoires. Operations Courantes. Par le Dr. L. Ombredanne. Paris: Masson et Cie., 1912. Price 7 frcs.

The object of this book is to review the advances in the technique of operations upon infants and children, and to point out those special points in which the technique differs from the usual practice of general surgery. The work is based on the practice of the Hôpital Bretonneau.

In discussing anæsthesia, the author advises ether for children over four years of age and chloroform for younger children; but he brings forward no serious reasons why the younger children should not also have the benefit of the safer anæsthetic, while he seems to have come to the same conclusion as most English surgeons, namely, that the liability to pneumonia or bronchitis after the operation is no greater with ether than with chloroform.

The subject of operation on the mastoid antrum and ear is well dealt with, and the operations are fairly fully described; but the rather important subject of glands in the neck is dismissed in three pages.

An excellent description of the operation for hernia in infants is given, but it strikes us that some of the operations described are rather unnecessarily complicated by too much suturing of the deep tissues. In operating for intussusception the author advises stitching the cæcum and terminal portion of the ileum to the abdominal parietes to prevent recurrence, and this we think is good when time allows of its being carried into execution without increasing the immediate risks of the operation.

There are two very good chapters on the operation for undescended testicle and hypospadias, with a very full description of the methods of operating. The book throughout is very clearly written, and each chapter begins with a discussion of the indications for operation, followed by a careful description of the technique which the author considers the best, and terminates with a brief, but in most cases sufficient, description of the after-treatment to be adopted. All the descriptions are clear and easy to follow, which is more than can be said for many books on operative technique. The illustrations, of which there are a considerable number, are quite excellent and fulfil their object, namely, to assist the reader to understand the text. The book is one which we can strongly recommend to surgeons just commencing surgical practice in a children's hospital, and any surgeon to a children's hospital will be almost sure to find some useful ideas between its pages. P. L. M.

Consultations Oto-Rhino-Laryngologiques a l'Usage des Praticiens. By Dr. André Castex. Paris: J.-B. Baillière et Fils, 1912. Pp. 268; 90 figures in the text. Price 6 frs.

This volume, from the pen of the well-known specialist who has charge of the Otological and Laryngological Clinic in the Faculté de Médecine of Paris, is valuable to specialists and general practitioners alike. It is the fruit of several years of personal experience, an experience which has shown the author that it is better to avoid the old methods of teaching and to adopt one whereby students are taken over the essentials obtained from some particular case. The matter is divided into five parts—the ear, the nasal fossæ, the pharynx, the larynx, and medico-legal points in reference to these regions. To the specialist in diseases of children there are numerous discussions of considerable value upon such subjects as oto-sclerosis in children, the complications and treatment of otorrhœa, foreign bodies in the ear, syphilis of the ear, the *rôle* of the doctor in relation to deaf-mute children, nasal obstruction, epistaxis, ozæna, nasal syphilis, adenoids, common affections of the pharynx, affections of the palatine tonsils, laryngeal polypi, and vocal disorders.

That oto-sclerosis often begins in childhood, that it attacks girls especially, and that childhood is the period when treatment may be of use we entirely agree, but we cannot subscribe to the assertion that the condition is especially manifested in congenital syphilis at puberty. The article dealing with aural syphilis is useful, and it is interesting to note that, as a result of his researches in the deaf-mute institution in Paris, the author has found only seven cases out of 569 (1·05 per cent.) of educational deafness due to congenital syphilis; this compares very favourably with the London statistics of Macleod Yearsley. As regards deaf-mutism, the section on the

rôle of the doctor in relation to the educationally deaf child is one which every general practitioner should read.

But it is impossible to deal adequately with the many excellent sections which are to be found in this work, and, in praising it highly, we recommend it as thoroughly practical, clearly expressed, and sound in its teaching.

M. Y.

Le Livret de la Famille. By Dr. G. Schreiber. Paris: Masson & Co. Pp. 36.

This is an excellent brochure giving indications to mothers regarding their own health, and also concerning the bringing up of their children. The author describes what should be done and what avoided in the rearing of children, dividing the latter into four classes according to age, viz. from birth to the tenth day, from the tenth day to the age of two years, from two years to six years, and from six years to the age of fifteen. He draws attention to the duty of every healthy mother to feed her young, to the temperature of the room, the value of fresh air, and cleanliness—in fact, everything that a mother should know, and we cannot find that anything of importance has been omitted. We know of no work in which these matters are so succinctly put, and can heartily recommend this little book to the attention of both the medical and non-medical community.

F. R. B. A.

The Statistical Report of the Ambulatory Patients of the Quinton Polyclinic for Treatment by Isotonised Sea-Water. (July the 1st to December the 31st, 1911.)

This report, which is "printed for circulation among the medical profession," is disappointing. The point in debate we understood to be the superior virtue of sea-water over other saline solutions when given subcutaneously in the treatment of the diarrhœas of infants and for other complaints, and we cannot say that this report contributes to the settling of this question. After a brief introduction follows the report, given entirely in tabular form. It opens with eighteen double pages containing the notes on cases of gastro-enteritis, each page containing about eighteen cases. There is no attempt made of any sort of classification, reliance being placed on a very brief description of the condition on admission. While, in some cases, this is sufficient to show a condition of extreme severity, in a large number it gives us no real help in estimating the patient's danger. In the introduction it is written: "A considerable proportion of the cases were of the graver type, death having actually occurred in the waiting-room in the interval before consultation." This is rather an obscure passage, but we presume that this "considerable proportion" would not appear in the statistical report. Further, the title would suggest that all the patients were ambulatory, while the introduction lays stress on the fact that the great majority were ambulatory; but we are not told in the report which of the infants were "ambulatory" and which were not. Nor is there any information as to what dietetic alterations, if any, were made in the course of the treatment.

Other sections deal in the same manner with cases of various types receiving the treatment.

We trust we shall not be thought to be adding to the "acidulous

criticism," to which the Polyclinic has been subjected when we give our opinion that, whatever be the virtues of sea-water injections, the report is disappointing in that it does not help to elucidate the question.

R. M.

Transactions of the Fourth Annual Conference of the National Association for the Prevention of Consumption and other forms of Tuberculosis. Pp. 287. London: Adlard & Son, 1912. Price 3s.

The fourth annual conference of this Association was chiefly confined to the consideration of tuberculosis as it affects children, and was opened by an address by the Medical Officer of Health for Liverpool, Dr. Hope, on the "Prevention of Consumption," in which the subject of re-housing and disinfection of affected houses received full consideration. Dr. Philip opened the discussion on tuberculosis of childhood, in the course of which he stated that in Edinburgh 30 per cent. of children showed clinical signs of the disease. Dr. Delépine read a paper on the "Share taken by Human and Bovine Tuberculous Products in the Infection of Young Children," and stated that not less than 25 per cent. of the tuberculous children under five years of age suffer from infection of bovine origin. Drs. Priestley and Squire, respectively, devoted their papers to a consideration of tuberculosis during school life and its extension in the school, and the former drew particular attention to the large number of children showing patches of chest surface which did not resound to a blow of the finger-tip like the neighbouring or symmetrical parts, particularly below the clavicle, a sign which, in conjunction with the general appearance of the patient, should arrest suspicion. Dr. Squire does not believe there is much, if any, risk of the spread in schools of tuberculosis arising from tuberculous children, as the latter do not expectorate, as a rule, infective sputum until the disease has been active for some time, when the general health will probably prevent the child from attending school. He rightly, however, draws attention to the danger that would accrue from tuberculous teachers. Special schools, the hospital school, and open-air schools all received careful consideration from various speakers, and the information obtainable from reading these papers should be of value to all interested in the subject. Mr. Last gives the results of treatment in pulmonary tuberculosis in childhood in the Millfield Home, and finds that the prognosis in cavity cases is very bad; the mortality he puts at 80 per cent. The marked cases require treatment from one to four years and the prognosis depends on the environment when the children return home; the mild cases nearly all get well. This is an excellent paper and deserves careful reading, as well as that of Dr. Gauvain, who describes his experiences of surgical tuberculosis at the Lord Mayor Treloar Cripples' Home, where the mortality amongst tuberculous patients for the last three years and a half only reached 2·3 per cent. The last ninety pages of the 'Transactions' contain papers on the working of the National Insurance Act in connection with tuberculosis, and cannot be too highly praised for the lucidity of their contents. The 'Transactions' are of extreme value and interest and should be read with care by all interested in the subject. We should have liked to have heard of some of the experiences with tuberculin in childhood as a method of treatment, as they might have proved of value to future workers. F. R. B. A.